

COMPUTER WORLD

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Study Shows Salary Drop For New Jobs

By Michael Merritt

CW staff writer
NEW YORK — While inflation keeps on creeping, one thing is getting cheaper — the cost of a new programmer.

Programmer salaries have decreased from 2% to 10% in the last year, according to a study made by Robert Half Personnel Agencies. The average starting salary for an experienced junior programmer at a large installation has fallen 6.5%.

The most drastically affected are DP managers at large installations; their starting salaries are off a full 10%.

The least affected, the Half study says, are managing systems analysts at medium-size installations, whose starting salaries are just equal to last year's.

At large installations, starting salaries of programmer analysts have dropped 7.1%; senior programmers, 4.4%; systems analysts, 7.1%; managing systems analysts, 5.7%; and operations managers, 3.3%.

In medium-size installations, junior programmers are being hired for 4.8% less; programmer analysts, 2%; systems analysts, 4.2%; operations managers, 3.7%; and DP managers, 7.7%. In small installations, starting salaries of junior programmers are off 5.4%, systems analysts, 6.5% and DP managers, 6.7%.

More than 5,000 individual jobs were examined in the Half study, which included several other job categories.

Computer Scientists Surveyed
Meanwhile, statisticians at the National Science Foundation have compiled a description of a typical computer scientist:

- Makes \$16,500 a year.
- Only has a bachelor's degree.
- Works full-time for a civilian company.
- Works in R&D, though he might be a manager.

(Continued on Page 2)



CPU Slide Show

How about an IBM 360 to display your favorite color slides? GAF Corp.'s ESP 1000 system includes a circular slide projector which can accept commands from the CPU. The system has a capacity of 100 standard size 2 in. by 2 in. slides which can be projected at random with an access time of one to three seconds. Slides can be controlled at a remote site via a Bell data set.

Irish Professor Agrees Languages Ignored

By Don Levitt

CW staff writer
LONDON, England — Programmers and DP managers have very little interest in better programming languages, and even recognized improvements in languages take years, perhaps decades, to achieve widespread recognition. This was the conclusion of Computer Science Professor C.A.R. Hoare of Queens College, Belfast, at a recent international meeting here. Hoare added that DP staffs have developed a list of requirements that must be met for language acceptance.

These "political requirements" are:

- The language must be supported by IBM.
- It must link with existing methods of data storage and computer operation.
- It must enable existing programmers to maintain familiar programming habits.

There is no concern about the quality of a language. In fact, if the three political requirements were met, there is no point in talking about quality at all, he noted.

Hoare outlined the technical requirements of a good language.

It should be inductive, the professor said, so that the programmer "hardly noticed" that he had a language standing between him and his program. When the language is taught to beginners, the impression should be that students are learning programming per se, and not just a complex language.

Modest Goals

Language developers should be

modest in their goals, Hoare said. The translator should not interpose any significant delay between the submission of a program and its execution.

The language should be efficient, in both speed and space, so that the programmer can control the CPU resources required by his program.

Noting that a language should have "security," Hoare said that it should have high standards of acceptability of submitted source code. He took the designers of PL/I to task on this point, noting that they apparently believed that a language should try

(Continued on Page 2)

'New' 360 Borrows Model 30 Features

By Frank Plana

CW staff writer
WHITE PLAINS, N.Y. — System 360 is still alive. In a surprise announcement last week, IBM unveiled a low-cost System 360, Model 22, which bears a striking resemblance to the 360/70 but at one-third of the CPU cost. It will be available in July.

The lower price and proven hardware and software components are bound to have an impact on users evaluating computer systems.

With the low-priced processor, the overall system cost, including peripherals, of the 360/22 will be higher than such systems as the Century 100 or the Univac 9700.

But the somewhat higher price will give the user a system completely compatible with all larger models of the 360 and 370 lines. The availability of peripheral equipment from independent sources could bring the cost of the 360/22 system to competitive levels.

Performance Similar

The performance of the 360/22 is similar to the 360/70 with a cycle time of 1.5 μ sec for one byte.

This was considered fast when the speeded up Model 30 was announced in January of 1965, but by current standards, it is slow.

The 360/22 includes as standard equipment both decimal arithmetic and a selector channel which are optional on the 360/30. The newer model's selector channel differs in having a capacity of 170,000 byte/sec, half that of the 30.

The peripherals attachable to the 360/22 are not as extensive as are available with the 360/30. While the medium-speed devices, such as the 2311 disk drive and 2400 series tapes can be attached, the new system cannot support such high-speed units as the 2314 disk system or the 2420-S and 2420-T and 3420 magnetic tapes because of the lower selector channel rate.

Of the list of 360/30 options, the only ones unavailable on the 360/22 are direct control and the channel adapter features, IBM said. Only one multiplexer and selector channel are available.

Memory capacities on the newer machine, which IBM says uses "some reconditioned components," are limited, with only 24K byte and 32K byte models being offered by IBM.

The software used in the 360/22 will be familiar to every 360 user. Based on the DOS system, it includes Cobol and Fortran. The inclusion of RPG II will make conversion to this system simple for the System/3 user who needs to expand his I/O capabilities.

The price of the 24K 360/22 CPU is \$150,000, lower than the 360/25 and most models of the 360/20. The 32K version leases for \$11,500/mo. Purchase prices of the two available models are \$32,000 and \$44,000.

A typical configuration of a 24K 360/22 with three 2311 disk drives, a 1,000 card/min punch reader, 300 card/min punch 2540; 600 line/min 1403-2 printer and 1052 console typewriter will rent for about \$5,600 with a purchase price of about \$246,000, IBM said.

Justice Dept. Data Bank Revealed

By Joseph Hanlon

CW staff writer
WASHINGTON, D.C. — Elected officials are among 14,000 persons whose dossiers are in a Department of Justice computer data bank.

The computer is maintained by the Interdepartmental Information Unit (IDIU), which concentrates on the militants, opponents of the war in Indochina and New Left activists. Persons need not be convicted of crimes or be directly connected to violence to be listed.

The data bank was revealed in a New York Times article. A Justice Department spokesman characterized the Times article as "accurate," but he would not give out any additional information on the computer system.

According to the Times, the computer contains dossiers on elected officials and political moderates thought to condone civil disobedience.

At present, IDIU is particularly interested in people likely to participate in antiwar demonstrations scheduled throughout the country during April and May.

The computer also contains information on right wing groups, including the John Birch Society and the Ku Klux Klan.

The Justice Department has taken over from the Army the job of surveillance of lawful civilian political activity. When the Army began cutting back its activities last spring, IDIU was doubled in size, the newspaper said.

Most of the information for the dossiers comes from the FBI, with the rest coming from newspapers, the Secret Service, the Army and other federal agencies. According to documents stolen from the FBI office in Media, Pa., the FBI gets its information from paid informers, telephone company officials and operators, university registrars, local police departments and its own agents.

This data is first screened by the FBI and then by IDIU before it is computerized. But IDIU analysts have no written guidelines, and use their own judgment, according to the Times article.

Information from the file goes at least to the Secret Service, the Army and the Metropolitan Police Department in Washington, the article said.

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1401s Can Pack More Punch

PORTLAND, Texas — Want to get more throughput from your IBM 360 or 370? Get hold of a 1401 and use it as a printer/punch off-line satellite for the larger system. A local firm, Texas International Data Services, (Tids), said it has developed a software package to make a 4K 1401 do just that.

Some 500 installations with 1401s should be able to utilize the new program, a company spokesman estimated.

The Selective Print and Punch (SPP) Version 1 can accept input files in more formats, and handle records more flexibly than IBM's 1401 Multi-Utility, according to the firm.

Records may be blocked or unblocked, and fixed or variable in length. A unique character in each record identifies the report or card file to which it applies, allowing interleaving on the input tape of data records for many reports and/or card files, Tids said.

In addition to tapes generated by the 360, SPP can accept input from an IBM 7040/44 or a 7080, if a user has one of these machines.

Texas International Data Services can be reached through P.O. Box 272, 78734.

Direct Data Entry System

IRS to Eliminate Punched Cards

By a C Staff Writer
ANDOVER, Mass. — The Direct Data Entry System (DDES) recently installed by the regional Internal Revenue Service center here may save the government thousands of dollars a year and allow the IRS to give better service to its 17 million taxpayers in this region.

The North Atlantic service center is the first of the seven locales to convert to DDES, which will increase its capacity from 130,000 to 200,000 returns a day during peak season.

Before the system is formally accepted, it must function at least 95% of uptime over a period of 20 days.

Besides the savings and increased service, DDES will obviate the need of handling 68 million Hollerith cards a year, or 400 million cards when all seven centers are converted.

There are 478 key station terminals near the old 800 key-punch machine. Operators ("data transcribers") who used to be keypunchers converse with the system when input conflicts with the computer's memory.

Although the computer can challenge the operator, the final word will be that of a verifier who, when repeating her information, compels the computer to accept it as correct.

(As 99% of the transcribers will be women, IRS pointed out the "lady operators will have the last word.")

The transcriber reads the input on a CRT screen, erases errors with the correction key and inputting the correct information. Besides errors, the computer will inform the operator of her last transcription when she returns from lunch or coffee break.

If the transcriber skips a numerical sequence while inputting a block of returns (100 to 140), the computer will flash a signal of this omission on her screen.

Director of the service center Frank L. Browitt pointed out the new system can be "used for manual tasks doing what we want it to do."

For example, when the computer signals the verifier that it is questioning her input, the verifier can override the computer by sending the same data a second time. The computer will accept temporarily the word of the verifier, saving the "transmission" for later audit. The interim step of shuffling cards or losing them is of course eliminated.

The new system is housed in a 39,000 sq ft wing which was erected specifically for it. But first came a study and design phase, during which IRS asked computer manufacturers whether the technology was sufficiently advanced to meet the special requirements of the tax agency.

The normal method of bid-and-proposals was used for this process, and GE won the contract before having its computer division acquired by Honeywell, which installed the Andover system.

The CPU is actually twin GE 4020 process control units, with 24K words of core memory. Each unit has a drum with 262K words, and three disk units, each of which can store 7.6 million six-bit characters.

Ruling Sought for Software Patents

By Edward J. Bride
Cw Staff Writer

WASHINGTON, D.C. — Uncertainty over the validity of computer software patents is growing with the issuance of each such patent.

After the Court of Customs and Patent Appeals (CCPA) told the U.S. Patent Office it could no longer automatically reject applications for software patents, at least five programmers succeeded in their attempts to obtain patents.

Until the appeals process has reached the Supreme Court, however, doubt may hang over the existing patents for those programs, some of which are being or will be marketed with this protection as an important selling point.

An organization of companies engaged in data processing, publishing and other communications fields has asked the Patent Office to seek Supreme Court resolution of this uncertainty, according to Patrick J. McGovern Jr. of the Information Industry Association (IIA).

The chairman of the IIA's data and software committee, McGovern has asked the commissioner of patents to appeal "an appropriate (CCPA) decision" to give the Supreme Court "the opportunity to resolve this issue in the near future."

In a related matter, a resolution at IIA's annual meeting called for passage of a Senate bill which would protect businesses from "wrongful appropriation of trade secrets... and unfair competition."

Computer programs and data-banked items would also be protected, apparently, under the phrasing, "confidential information and other forms of misappropriation."

Separate Protection
Users, operators and interested observers have long been advocating a separate form of protection for computer programs. Many feel that copyright protection is too permissive, since it does not protect unauthorized

use of published material.

Patent protection, they feel, is largely unenforceable, since the use of a program developed entirely separately and coincidentally to one that is patented would nonetheless infringe that patent.

There is only one case which the Patent Office could appeal, a spokesman told CW, since there is only one CCPA decision that is less than 90 days old.

That ruling involved a Mobil Oil Co. programmer, who applied for patent protection for his Fortran program which analyzes seismographs, or graphs of "controlled earthquakes" used in petroleum prospecting.

Starting Salaries Dropping, Study Says

(Continued from Page 1)

• Lives in California, New York or near the District of Columbia.

The results are from the annual survey conducted by the National Register of the National Science Foundation. Over 300,000 scientists were surveyed, of whom 11,324, or 4%, were computer scientists.

Over 4,000 of them are engaged in R&D as their "primary work activity," and over 3,000 in management or administration.

Only 431 are involved in teaching, but there are 1,000 consultants, and nearly 1,400 engaged in "exploration, forecasting and reporting."

The best paid are those involved in management of R&D, with median salary is \$20,300, and the poorest-paid are the forecasters, who average \$14,000.

Almost three-fourths of the computer scientists covered by the survey work for industry and

business; another 1,600 work for educational institutions. The only other segment that employs more than 400 of the 11,324 is the Federal Government, which pays 882 of those responding to the survey.

In the breakdown of salary by type of employer, it is apparent that the best-paid computer scientists of the group are self-employed consultants, whose median earnings are \$20,000. Those employed by nonprofit organizations, excluding schools, rank in the next category, averaging \$17,500. Employees of industry and business average \$16,800.

The poorest paid were those working for schools, who averaged \$14,300 for the average day year, and those working for governments other than federal.

Mounties Set Up Enforcement Net

OTTAWA, Canada — The Royal Canadian Mounted Police (RCMP), participants in the FBI's national crime information center (NCIC), is setting up its own Law Enforcement Information Network.

The system will supply law enforcement officials throughout the country with information on criminal activities through an on-line inquiry network. More than 75,000 inquiry/hr can be processed.

Remote site keyboard terminals will be connected with Interdata Model 5 processors and regional data concentrators, also supplied by Interdata.

who averaged \$14,400.

The states with the greatest number of computer scientists were New York, 1,373; and Massachusetts, 679. Added together, the District of Columbia, Virginia and Maryland had 434.

The state with the fewest computer scientists responding to the survey was North Dakota, which had four, though it ran into stiff competition from South Dakota and Nebraska at five each and Arkansas with six.

Yippies Conveno, Discuss Methods Of DP Sabotage

MADISON, Wis. — Viet Cong flags flew and guitars chanted, "ho, ho, Ho Chi Minh, the NLF [National Liberation Front of Southeast Asia] is gonna win!" and attendees at the radical National Youth Party (Yippies) convention sat down to discuss how to sabotage DP centers.

Methods of DP center sabotage suggested ran the gamut from punching extra holes in cards to fire bombings, undercover reporters said.

Speech emphasis was given to multiple attacks on centers since, the speakers claimed, "If you get only one, the pigs tighten up on the rest."

Banking and public utility centers as well as police communication nets were termed the most important targets because of the chaos caused when people are "deprived of their precious heat, light and loot."



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DP Professor Sees Little Interest In New Programming Languages

(Continued from Page 1)
to make some kind of sense out of almost any program text presented to it, even though the results were often twisted, and sometimes not even detected by the user.

Recent discoveries in language design listed by Hoare included syntax permitting top-down analysis with no backtracks, and an awareness that the most ef-

ficient structure for a translator used a single pass approach with a loader.

He warned programmers that the result of every operation should be known at compile time and that the proper use of internal program pointers should be checked prior to execution. In a group, he said, should be programmed explicitly and not constructed by means of jumps.

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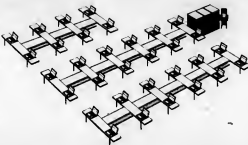
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Popularity Growing

5...4...3-Day Work Week Has Arrived

By Edward J. Bride

Cw staff writer
NEW YORK — The four-day work week is inevitable, say some observers.

One of the largest computer users in the nation considers this fact ancient history, for his computer employees have been working a three-day week for years.

The Metropolitan Life Insurance Co., among the world's largest, is successfully operating under a three-day schedule for its 475 DP employees, according to Edward Honan, assistant vice-president for electronic installations.

The program started in September 1969, Honan related, after a four-day week was abandoned in 1956 because of general dissatisfaction.

One problem with the four-day system was that the computer center could not run around the clock and keep any sense of order in personnel scheduling; the work schedule was predicated on an approximately 10-hour day.

No Overtime

The three-day week at Metro-

politan consists of a 12 or 12-1/2 hour day, so the operation can continue without scheduled overtime, Honan explained. One of the chief benefits of this system is the ease in hiring computer employees, Honan claimed. He said there is less turnover and a higher calibre of employee under this system, resulting in savings on training.

Five-Day Weekend

Employees work either Monday, Tuesday and Thursday, or Wednesday, Friday and Saturday, and they alternate weeks on that basis. Thus, they have a five-day weekend every other week and never work three days in a row.

The benefits in commutation seen in the four-day week [CW, March 31] are enhanced even further under this system, as are the savings in purchased lunches and increased leisure.

Metropolitan gave its employees a pay raise when it went on this system, and boasts of the increased employee performance. Honan said employee reception to the three-day week was almost unanimous, and exceptions were transferred to other departments.

The "normal" work day now is either 7:30 a.m. to 8 p.m.,

7:30 p.m. to 8 a.m., allowing some minimal overlap during shift changes. The double three-day operation permits full utilization of the computing equipment, except on Sundays.

Metropolitan's 19th floor computer center in downtown Manhattan, plus an office at Lake Success in Nassau County, includes two large IBM 360 systems, a Model 50 and a 67. The rest of the inventory is Honeywell gear: two 8300s, three 1800s and five 800s. Some of the company's divisions have their own computers, as well as communicating with the corporate center. The "group side," as Honan called the Group Insurance Division, has an 8200 of its own, for example.

Near Reality

A growing number of computer users see the long-day/short-week idea as a near reality, but most of them are experimenting with a four-day week. Metropolitan and a few other life insurance companies have already tried that, and have gone a step further, into the three-day work week, and it is not an experiment.

The only problem with this system, Honan surmised, is that "I'm not on it."

Plan Favors DP to Decide Eligibility for Welfare Aid

Cw West Coast Bureau

LOS ANGELES — A plan being studied by IBM would provide terminals at which a prospective welfare client could supply information about his eligibility much in the same way that computer-aided instruction works.

IBM has offered to do a free study for the Los Angeles County Department of Public Social Services (Welfare) to determine if and how eligibility for benefits could be determined by a computerized method.

It had been proposed that the study be put up for bids, but this plan was dropped after IBM made its offer. Welfare costs are the country's most critical domestic problem, and if IBM can come up with a method that

helps Los Angeles, there will undoubtedly be a ready market for it throughout the country.

At present, 5,000 workers in Los Angeles struggle with 413 different forms to establish eligibility for benefits for such as the aged, disabled and blind.

Elias Murphy, head of the department, keeps a stack of regulations on welfare benefits outside his office. It reaches a height of five feet. Even the local head of the social services union complains about the plethora of regulations.

A proposal was recently submitted to the county that provided a \$41 million annual saving if aid checks for the state were computerized at the state level.

News Wrapup

Ervin Introduces Privacy Measure

WASHINGTON, D.C. — A bill to protect federal agency employees from "invasions of their privacy" was introduced in the Senate recently by Sen. Sam J. Ervin Jr. (D-N.C.) and 50 cosponsors.

This is the third Congress to consider the proposal. In introducing S. 1438, Ervin said that "the American people have made it clear that the time has indeed come for congressional action to protect them from governmental interference with their enjoyment of personal privacy and other constitutional rights."

The purpose of the bill, among other things, is to prohibit "indiscriminate requirements that employees and applicants for government employment disclose their race, religion or national origin; or submit to questioning about their religion, personal relationships or sexual attitudes through interviews, psychological tests or polygraphs."

Airline Knows How to Keep Its Workers Busy

CHICAGO — Ideas for new computer applications are appreciated. Alan S. Fong, a systems analyst for United Airlines, has received \$23,175 from the airline for suggesting a computer simulation model to develop the optimum in manpower shift scheduling.

The amount was the second highest award given under United Second Officer Gordon Puckett received \$45,850 for a new method of positioning cargo weight aboard jets to reduce fuel consumption.

British Computer Expert Charged With Spying

DONCASTER, England — Nicholas Prager, a computer expert employed by the English Electric Co., was ordered held over for trial on charges of spying for an Iron Curtain country.

Prager, 42, was charged with making a sketch of classified material and passing it on to agents of a Communist country. He had been employed in the UK, and it was in England that he allegedly made the sketch. Subsequently his company had sent him to Czechoslovakia to help in the planning of a steel plant.

Prager was the first known UK worker arrested in the country on spying charges.

Grosch, 2 ACM Council Members Oppose ABM

OSSENING, N.Y. — Dr. Herbert Grosch and two other ACM Council members announced opposition to the ABM (antiballistic missile) on the grounds that the computer systems are unlikely to

The three ACM officials are part of a group of seven new sponsors of Computer Professionals Against the ABM.

The seven new sponsors are Grosch, National Bureau of Standards; and ACM Council members Charles H. Davidson, ACM North Central Regional Representative, and Arner Finerman. Also, Stanford Prof. Robert Floyd, Peter Ingerman, New York University Professor Melvin Kleier and Dr. Donald Shell.

1,000 Stewardesses Keep Up With Fashions

LANSING, Mich. — Step right up, no waiting here! Instead of fitting each of the 1,000 stewardesses individually for a new uniform, National Airlines took sample measurements of 150 and computerized the tailoring of the new uniforms. The sample group was divided into three basic sizes — tiny, typical and tall.

Why Don't They Just Cash the Check?

WEST LOS ANGELES, Calif. — How to become a millionaire in one split second of computer time is the tale of Mr. and Mrs. Emanuel Kops. Their bank statement recently showed a deposit of \$20,000,071.49. When they questioned the bank about this unexpected windfall, bank officials said that such an error was impossible since their computer didn't handle figures that high.

Later, Union Bank denied that the error existed, according to Mrs. Kops. A corrected statement still hasn't been issued. So on paper they are still millionaires.



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**GRAHAM
MAGNETICS**

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L.A. Is Banking on Countywide Information System

By Phyllis Higgins

CW West Coast Bureau

LOS ANGELES—The problem of maintaining data control and management services for a county whose population exceeds all but seven states and encompasses 4,000 square miles is a challenge being Gordon F.

Millman, director of the DP department for Los Angeles County.

Some of the DP problems in county governments are due to taxpayer pressure to cut costs rather than management interest in improving profits.

"We are analyzing every cost item," Millman says. The Los Angeles County

budget is \$12.5 million this year, and includes one IBM 1401, two 1620's, two 360/40's, three 360/50's, one Spectra 70/35 and two 70/45's, a Burroughs B3500, one H-1-20 and one H-1-200.

This multivendor shop has standard Cobol subroutines that facilitate intermachine understanding, and the systems are mostly dedicated to specialized services.

There are 986 employees and the average duration for programmers is two to two and a half years. The pay scale starts at \$715 a month for trainees, \$842 for assistants, \$992 for journeymen and \$1,107 for senior programmers.

According to John Coughlin, deputy director, the county DP agency has found that it retains more employees if it trains its own workers.

An unwelcome budget problem was created by IBM's unbundling. While the department knows its DP costs will increase, all the figures aren't yet compiled. Los Angeles County had started its own

in-house training arrangement and its own software service group. As Millman puts it, "Unbundling has speeded up our attempts to get self sufficient in these areas."

"It is my dream to have a countywide management information system," says Millman. He is consolidating 11 centers into seven ones, real-time, third generation centers, including justice, administrative, property, welfare, health care, engineering and records.

Phase I has been completed, the signing of agreements with customer departments, establishing management committees for the centers and appointing DP coordinators.

Currently in Phase II, Millman says, "This is our bridge to the future. Our real goal is to install this countywide information system by 1976 in Phase III."

It will be built around a dynamic data base accessible by terminals available to top management, middle management and line operations. The line operations will use these terminals for remote data entry to keep the data base current and accurate.

Middle management, instead of stacks of hardcopy output, will receive exception reports of what it needs to know on a timely basis. For top management the same data base will be available for advanced planning to answer such questions as, "What will the effect of this or that change upon Los Angeles County be in the year 1985 or the year 2,000?"

If any center is destroyed, the others will be able to pick up the workload and continue to serve the county. While each facility will have its own basic data base to meet its customers' needs, a terminal could be routed through the other facilities to other data bases, based upon a need to know and a right to know.

In working with a department the DP group demands a department coordinator who will take a two-week training course. He is then responsible as the intermediary for scheduling, for any errors, delivery of data, etc.

If a new application appears the unit dig up the basic information, working within the department rather than as an outside service group.

In the current process of the consolidation, the justice center follows all prisoners through the booking process and the busing to various jail, medical or rehabilitative facilities and their appearance in court.


CRTs or terminals are used at the various facilities to keep the prisoner information current. A want/warrant application makes it possible for the policeman to get information regarding stolen cars or wanted persons almost instantly.

The administrative data center serves the auditor, the personnel department, the county administrator's office and the Retirement Division of the treasurer's department.

The goal, however, is to have a personnel-payroll-budgeting-retirement system in an on-line CRT terminal operation. This would provide effective management information for personnel records. A child support system with some 120,000 cases, using CRTs to help enforce the necessary support of abandoned children, is being implemented.

The property data center has a long range plan to create a land-use data base to associate the people with the land they live on.

The welfare data center is connected by terminals to 20 welfare centers. It is used to speed up production of welfare warrants, medical I.D. cards and food stamps. It is also used to relieve the overload of continuously increasing welfare cases and changing regulations. The health care data center serves eight county hospitals with the largest being the Los Angeles County-University of Southern California medical complex.



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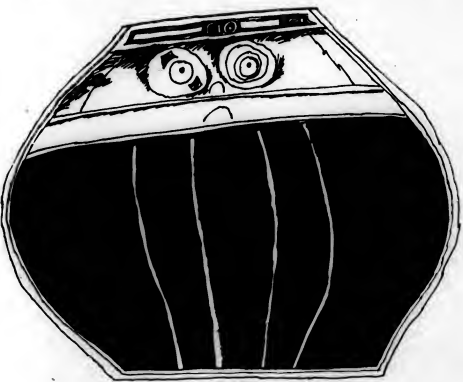


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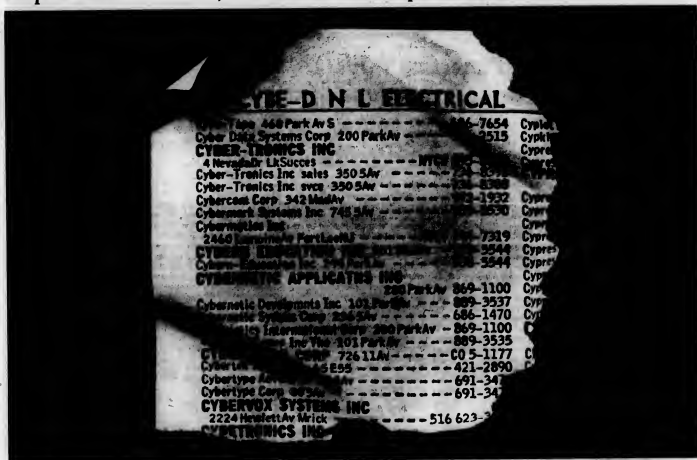
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(Cleared up by Cybermatics Inc., Fort Lee, New Jersey)

What you see in the picture below is a bad case of cyberling rivalry. The phone book is full of companies named Cyber-something. Since we helped make this mess, we'd like to clean up our corner of it.



Here's the mess, torn from the phone book. We're in there somewhere. Can you find us?

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But when you do, please pronounce it very, very carefully.

Editorial

Facts In, Garbage Out

Life recently illustrated how facts could be used to make President Nixon appear to be a security risk.

Some people, including Sen. Roman L. Hruska (R-Meb.), believe such situations could be avoided in practice by making sure that the "information gathered [is] useful, necessary, dependable and complete."

However, unless extreme care is taken during retrieval runs, such guidelines are meaningless.

Assume, for the moment, that Mr. Nixon's dossier is complete as filed. Someone reading the entire record would not be misled.

But what would happen during a security crisis? The government suddenly wants, for instance, a list of the names and address of everyone who has visited Russia and associated with Communists.

Mr. Nixon's name would be one of those retrieved. And, assuming he was then a private citizen, not even the fact that he is so well known would protect him from a possibly embarrassing investigation by security forces.



Senate candidates advocate a vote for each citizen, via telephone to a computer, on major congressional issues. (NEWS ITEM)

Dumping of Privacy Panel Can't Obscure Pioneering Contributions of Gallagher

WASHINGTON, D.C.—Rep. Cornelius E. Gallagher (D-N.J.) is being stripped of his power to probe the invasion of privacy issues.

A few weeks ago his House Special Subcommittee on Invasion of Privacy was dumped by Rep. Chet Holifield (D-Calif.), chairman of the parent Government Operations Committee.

And Gallagher's renewed request to the House of Representatives to establish a new full select Committee on Privacy, if it is a n

D.C. Date-Line

By Alan Dretell



Value and Democratic Institutions appears to have little chance of being approved by the Rules Committee. With Gallagher being pushed into the background, an observer must wonder who, if any one, in the House will become the privacy advocate.

At present, there are two candidates—Rep. Edward I. Koch (D-N.Y.) and Rep. Abner Mikva (D-Ill.)—both of whom have introduced privacy bills. But as yet neither of these two gentlemen is the strong counterpart of the Senate's leading privacy proponent, Sen. Sam J. Ervin Jr. (D-S.C.).

And neither Koch nor Mikva have unleashed the type of publicity machine which helped to propel Gallagher and the privacy issue into prominence.

While I have at times questioned the methods employed by and the sincerity of Gallagher in his hearings, there is no doubt that he almost single-handedly in the Congress kept the issue of privacy invasion very much in the public spotlight.

Yeoman Task

His privacy panel in its six

years of existence did a yeoman task on a paltry \$65,000 in allocations. The panel held the first hearings on the computer and invasion of privacy, initiated congressional consideration of the credit reporting industry and brought the Army internal operations computer network to congressional attention.

"And, quite frankly," Gallagher related, "(we kept) the issue of privacy alive enough so that Ervin could now be proving indisputably how correct my original insights were."

Whatever his motives, Gallagher was a pioneer, and the dumping of the privacy panel by Holifield seems outwardly somewhat callous.

In a rambling interview, Holifield told CW that the privacy panel under Gallagher had been on special assignment from the previous Governors Committee chairman, the late Rep. Walter L. Dawson (D-Ill.), and that the panel must be reinstated each session of Congress.

"It" was not reinstated in the last Congress," Holifield said. "In other words, Gallagher operated to the extent that he did operate as a carryover without official reinstatement."

Holifield further explained that he had reorganized the subcommittees of the Government Operations Committee along "traditional" lines. "I'm free at any time to assign a special inquiry or a special function to a subcommittee" to investigate the privacy area and consumer affairs, the other special panel dropped by the committee.

"No Fears"

Asked specifically if the Special Studies Group might look into the credit industry, Gallagher in his hearings, there is no doubt that he almost single-handedly in the Congress kept the issue of privacy invasion very much in the public spotlight.

We have a very heavy agenda." The California lawmaker cited President Nixon's Federal Agency Reorganization plan as one of the agenda items.

In response, Gallagher said: "The Committee on Government Operations has never agreed with me, and it is relevant to point out that the consumer inquiry, also abandoned by the committee, has done extremely important work with as little support as we have had... I do not believe that Government Operations, with its rigid and old line approach, will be viable for us, even should they reconsider their hasty and cynical dismissal of privacy."

Meanwhile, the two potential heirs apparent, Koch and Mikva, have sponsored bills which cover agency recordkeeping and freedom from military incooping.

Koch, with limited fanfare in February, introduced a measure that would establish a system to act as a check on the government's recordkeeping, allowing, among other things, an individual to inspect his dossiers.

Last month, Mikva quietly introduced what he calls the "Freedom from Surveillance Act of 1971."

The Mikva bill specifically says that "it shall be unlawful for any member of the armed forces or any person employed by them to collect, distribute or store... information pertaining to the political, social or religious beliefs, actions or affiliations of any person..."

Of course, neither Mikva nor Koch may inherit Gallagher's mantle in privacy advocacy in the House. But no matter. The fact remains that Gallagher performed a necessary task by creating a climate of national concern regarding invasion of privacy. And now the concern is being translated into legislation by others, in addition to a measure the New Jersey lawmaker has proposed involving tax firms disclosing data about their customers.

Letters to the Editor

Let's Have Hole Truth About 96-Column Card

I was interested to see that William Lutz, who wrote the article in your Feb. 24 issue extolling the virtues of IBM's 96-column card, is apparently unaware of U.S. Patent 1,772,492 issued to Clair D. Lake. For more than 30 years Lake was one of Tom Watson's most inventive and reliable engineers, in 1930, and assigned to the Tabulating Machine Co. of Endicott, N.Y. You will see from the enclosed copy of the patent that the inventor then called the rectangular hole to be superior to the round hole. It now appears, after 41 years of hole experience, the Tabulating Machine Co., in its present manifestation as IBM, has discovered that the round hole is superior after all. How many times will we be cycled through this hole foolishness?

Eric A. Weiss

Philadelphia, Pa.

It should be noted that Lake's patent was based on the problems of reading cards with brushes. The 96-column cards are read photoelectrically, a different ball game. Ed.

Winner Here Is...

It is my feeling that Computerworld should nominate the "computer man of the year" for each calendar year. My nomination for the "computer man of the year" for 1970 would be Nicholas Katzenbach, vice-president and counsel for IBM with additional honors of being placed on the board of directors of IBM last year. In a short two years with IBM, has risen to be the sixth highest paid executive in IBM.

During 1970, Katzenbach has settled out of court the Applied Data Research suit, Cognis suit, Data Processing Financial & General suit, counter-sued Control Data Corporation, etc. He has been instrumental in silencing Howard Levin and Harvey Good-

man, the founders of the two major computer leasing companies in the U.S.

He has changed IBM from a selling and marketing organization to the major legal instrument existing today within a public corporation.

It is probable that he will obtain a consent decree with the Justice Department that will perpetuate IBM's monopoly of 70% to 85% of the free market computer systems within the U.S.

It is my feeling that CW should hold a contest or make a selection of the "computer man of the year" based on his influence on the computer market and its future direction.

Thomas E. Doyle

Summit, N.J.

The Fallible Fellow

For shame, Computerworld, for shame! Your March 31 editorial, an almost classic apples-to-oranges comparison, not only fails to uncover the root of the problem but, indeed, fails to uncover anything beyond the truism, "People shouldn't make mistakes."

Since people, however, inevitably err, the successful DP operation takes great pains to detect errors and facilitate their correction. In contrast, a student learns from his mistakes then suffers from them.

Donald J. Smith
Seattle, Wash.

People err, but conscientious people catch most of their own errors before they submit their work. The "75% syndrome" does not encourage people to be conscientious. Ed.

Computerworld welcomes comments from its readers. Preference will be given to letters of 150 words or less. Letters should be addressed to: Editor, Computerworld, 787 Washington St., Newton, Mass. 02160.

Members Look More Like Markets From Park Ridge!

"You can tell how good an association is by looking at the services it provides its members," proclaims a DPMA brochure advertising for new members.

Unfortunately, after making this brave statement, the brochure goes on to talk not about services provided for members, but instead about a product that was sold to anyone, member or not.

The DPMA unbundling seminars. The only other explicit service that the brochure mentions is the 1969 DPMA opposition to restraining capitalization of software expense for tax purposes. Whether or not this really was a service to many DPMA members—who are, after all, not firms but people—is dubious.

Even so, it is interesting to look at just what services DPMA does provide for its members as such. It is, as DPMA says, a valid way to evaluate a society. To get matters into some form of perspective, however, it might be an idea first to look at just what its members give DPMA to support such services.

The current membership fee is \$20 and is going up to \$25. Based on the over 30,000 members claimed by the association, this currently brings something like \$600,000, going up to around \$750,000 or more.

Out of this amount, \$250 member or \$125,000 is reserved to support the association magazine, *Data Management*. The magazine also has its own income of about \$200,000 from advertising, so should be reasonably self-sufficient.

In addition to the remainder of the dues, the association also has the profits from the annual conference, generally about \$80,000, available for member services. In total the sum is about \$550,000, rising to about \$800,000 in a few months.

There are some calls on this \$550,000. For instance, until recently there was the requirement to put out a copy of the proceedings of the annual conference. This, however, is now being handled by making the proceedings a special addition of the DPMA journal.

In addition, there are two research grants that are provided

goes to chapters for insertion into the local chapter news letters.

These are, however, minor amounts of activity, and although the accounts are such that you cannot work out what they cost, an allocation of \$200,000 a year seems to be adequate. This leaves something on the order of \$350,000 to members, maintain a member service. The question is what do they get?

New Questionnaire Coming

I asked Donald MacPherson, DPMA's director of education, about this and he told me that

So this activity can hardly be regarded as a service to members—it is actually a marketing survey for someone selling products, the someone in this case being DPMA's international headquarters.

White at DPMA headquarters, I also found out only two sets of services other than products for sale. DPMA, on behalf of its members, maintains a member ship in the Business Equipment Manufacturers Association (Bema) sponsored X-3 committee on programming languages. I talked to the member, and asked him where he got his instructions. It turned out that he did not get any instructions, he just formed his own viewpoint.

Moreover, he did not bother to report the way he voted to the membership so they do not know anything about it. "They would not understand what the voting was about," was his explanation.

The other service was the secret preparation of reports. A government agency asked for a report late last year, and got 125 pages. I have not seen it. I hope it really is a service, and not a disservice to members.

Unfortunately, members are not in a position to know, because they have not been told that the report exists—never mind what it contains.

After leaving DPMA headquarters without having discovered any real services to members, I went through the literature that I had been shown. Included was the "Communication to Members from DPMA Headquarters," etc., consisting of plugs for various products that international headquarters is trying to sell.

There were plugs for the DPMA conference, there were plugs for books, there were plugs for films, etc. I analyzed them and found that nearly 80% of the "news" items were in fact commercial plugs! Again it began to look as though the mem-

ber's pocketbook was what was getting attention.

Even where a situation appears to be unrelated to a product, it turned out that there are financial relationships.

For instance, one of the achievements of which DPMA is most proud has been the guidelines for DP schools. (These are due to be superseded shortly because ACM and DPMA managed in two meetings ending last August to come up with a new joint set of guidelines.)

However, something sticky has turned up apparently in some nontechnical matter. It must be in a nontechnical matter because otherwise there would have been further meetings to clear the matter up.

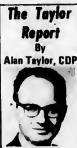
Calvin Elliott tells me that "hopefully the new guidelines will be out sometime in this calendar year."

After being exposed to the environment in international headquarters, perhaps one can give a possible reason for the delay. The DPMA guidelines, which unlike the ACM guidelines were not published freely, are put up in a \$1.50 48-page book.

I wonder whether or not the situation for the new guidelines will become less sticky when the inventory of these \$1.50 items sitting on the headquarters shelf is reduced sufficiently so that the association can afford to write the rest off!

All I can say is that as far as I can see after visiting Park Ridge and looking at its actions, its research and its communications, DPMA members seem more like a market, rather than someone to be served, and the money appears to me to be supporting the marketing effort—rather than serving members. What the \$550,000—or whatever—is the really available amount—is buying for members I still don't know.

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Where Are DPMA's Members?

This analysis is based upon the published claim of DPMA to have over 30,000 members in chapters throughout the free world. There appears, however, to be some mystery as to where this membership figure comes from, or even if it is accurate.

The official circulation statement of *Data Management* indicates that only some 27,000 copies of the magazine are given to DPMA members, and all members automatically receive a subscription.

Something does not fit somewhere, and the sooner that DPMA explains its claim to have over 30,000 members the better. I hope that the explanation is not simply that 30,000 was thought to be a better commercial plug for the society.

by the association for PhD dissertations, amounting to \$4,000 a year. So far no dissertation has been considered sufficiently important to be published.

Of course not all the balance of the money is available for giving services to members. Some of it is taken up in administration matters—providing secretarial services for an executive committee, and the executive director, keeping a mailing list and sending out membership cards, changes of address, etc.

Some of it is spent in sending out news releases propagandizing for the association on various activities. On the whole, one news release goes out to industry each month, and another one

practically all the research that was going on was related to a series of questionnaires that start in the April *Data Management*.

I looked at the draft questionnaires, and asked its function. "We do not know who our members are," he said, "and these questionnaires are designed to let us find out. Then we will be able to service them."

Just a little later, however, it turned out that the function of the questionnaire was not really to find out who the members were, but what DPMA products they would buy.

In particular it was to find out which member needs will allow a product, such as a book, to have a long shelf life!

Letters to the Editor

How to Solve Cote Programs

The Taylor Report "Throwing Cobol Baby Out With Programmer Bath" (CW, March 17) is a responsive chord. I have long maintained that there are clever programs and there are cote programs.

The difference is: the cote program is designed to expound upon the originator's superior knowledge of his art at the cost of legibility and machine dependence.

The clever program reflects a reasonable knowledge of computer "facts of life" but at the same time it maintains sufficient legibility so that the originator is not perpetually saddled with the headaches of extension, revision and "bug fixing." I maintain that there are too many cote programs and not enough clever programs in this world. If I had to take issue with your recent article it would be on two minor points:

It was unduly restrictive; what you said with respect to Cobol applies equally well to Fortran, PL/I and RPG.

The ultimate threat is not, as suggested, rejection. It is instead a promise which I have repeated many times to programmers with whom I have been associated: I refuse to debug a program which is too cote to be practical. Rejection is the easy way out.

Raul R. DesJardins, Vice-President

Allen-Babcock Computing, Inc.
Los Angeles, Calif.

Taylor replies: Refusing to debug works to

prevent the "cute but illegible programs" but not the "simple and legible" ones. Yet "simple and legible" programs are also prevalent, and are also against the Cobol aim of general, easy, understandability. I think that only rejection can stop these! DesJardins is quite right about Fortran, PL/I and RPG, but these languages do not have an official endorsement to be generally understood, which is why I concentrated on Cobol.

How About CDP Organization?

The failure of the CDP program to gain recognition is due to one simple fact. Since DPMA conceived (I assume) the CDP program, it has kept it tightly boxed in within its own organizational confines, and as he pointed out, that organization structure is not truly representative of the individual, let alone the CDP holder.

What is needed, therefore, is an organization of CDPs, similar to the American Institute of CPAs, to promote their own welfare, set their guidelines, and determine a course of action tailored to fit their requirements. Since Taylor is in a position of reporting these problems, why not publish a questionnaire to see how other CDPs feel about having their own organization?

Donald R. Collins, CDP

KCL Corp.
Shelbyville, Ind.

Taylor replies: I will offer the solutions when more of the facts are generally known, and if the membership does not offer good solutions of its own—in the way that you are constructively doing. What do other CDP holders think of the idea of a CDP-organization questionnaire?

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Novel Combines Computers, Adventure

By R.M. Patterson
CW Executive Editor
The Crossing by Brian
Rothery, J.B. Lippincott Co.,
521 Fifth Ave., New York, 152
pages, \$5.95.
The publisher unfortunately

has chosen to hawk this ad-
venture story as a "novel of the
Age of Computers" because the
hero "applies his knowledge of
systems analysis to the critical
problem of his own survival."
Such statements will only con-

firm what many people have
darkly suspected—that com-
puter experts often climb
mountains simply because they
are there. The hero damn near
kills himself trying out solutions
even a first-year systems analyst
should avoid.

Based on a personal experience
endured by the author, a British
computer expert, this story of a
man stranded in the Arctic wild-
erness makes interesting reading.
The challenge is to figure out
what critical facts the hero has
overlooked.

The other challenge, in view of
the publisher's statements, is to
avoid comparing the hero to a
systems analyst who overlooked
an obvious way of saving an
awful lot of computer time.



COMPUTERWORLD

book reviews

Selections on Software Can Satisfy Need for Valuable Reprint Service

By John Bradley

Special to Computerworld
*Software for Computer Sys-
tems*, compiled by Edward O.
Joslin, College Readings, Inc. Ar-
lington, Va., 1970, 380 pages,
\$6.95.

This paperback is the third in a
series intended to shortcut the
long lead-time process necessary
for textbook development.

Joslin, the compiler, theorizes
that there is a need for an
interim distribution of current

technical thinking to computer
professionals, and that if the
proper selections are made, a
reprint service can be a valuable
asset to one hurried by a broad
array of technical responsi-
bilities.

"What is a computer pro-
gram?" (reprint from *Modern
Data Magazine*) is conspicuous
by its presence alongside such
top quality articles as Ascher
Opler's "Is Assembly Language
Programming Pasting?" and
Rosen's "Supervisory and Moni-
tor Systems," but the selection
in general is a good one.

Approximately one-half of the
book is taken up with a primer
to Fortran and Cobol con-
tributed by McAdams.

The Cobol section has clearly
been patterned after the USA
Cobol Standard developed under
the guidance of the American
National Standards Institute and
as such provides the student
with an authentic working base.

Two of the articles reprinted
in the first section of this paper-
back collection ("Cobol Versus
UnCobol" and "Modular Pro-
gramming in Cobol") provide a
useful Cobol primer extension.

The Fortran Primer section is
patterned after Fortran IV, first
introduced by IBM in 1962. A
brief reference to the USA stan-
dard in an appendix dis-
tinguishes between the basic
standard and the full standard
Fortran.

Supplemental Fortran guidance
is to be found in the reprinted
articles such as "Incremental
Compiler" and "A Basic Con-
versational Fortran Programming
System OS/360."

John Bradley is an engineering
consultant in Bethesda, Md.

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April 14, 1971

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Random Notes

Health Service Approves
ECG Interpreter for 360

WASHINGTON, D.C. — The U.S. Public Health Service has recently certified an IBM 360 program for electrocardiograph interpretation, developed by Beckman Instruments Inc. of Fullerton, Calif.

An adaptation of software previously implemented on the CDC 160s and XDS 5, 6 and 7 computers, the Beckman version requires a 360/40 or larger model, with 100K bytes of core end, at the remote location, specialized equipment that amplifies the patient's heartbeat for transmission over dial-up Bell telephone lines.

The software is available to qualified hospitals and other medical institutions without charge, from the U.S. Public Health Service.

Faster Service on Call/360
Supports 30 char/sec Units

NEW YORK — Part of the Service Bureau Corp.'s Call/360 time-sharing service will now support faster terminals.

Available in selected locations this month, the service will allow users with 30 char/sec I/O capability to accept and process data transmitted at 300 bit/sec.

Cities to go on the faster service now are Chicago, Cleveland, Los Angeles, New York, Philadelphia, San Francisco and San Jose, Calif.

Connect charges for the 300 bit/sec service are \$15/hr, compared to \$11/hr for standard Call/360. Storage and CPU charges are unchanged.

Fortran Program Analyzes Yield
Potential of Income Properties

ENGLEWOOD, Colo. — Real estate investors can study the factors that affect yield with the Income Property (Income) program, available as a package from the developer, Computing Corp. International (CCI), or as a service from International Business Service.

The Income package will run on any computer that supports Fortran IV. But it can be adapted to Fortran II capabilities. It costs \$300 from CCI. The "mail order service" for property analysis costs \$10/report from IBS. Both companies are at 3375 South Bannock St.

Financial Planning Program
Added to Telcomp Network

CAMBRIDGE, Mass. — Users can analyze the consequences of a business plan, policy or strategy, with the Financial Planning and Forecasting Program (FPFP) on the Telcomp time-sharing network.

Working from balance sheets and operating statements from past years, FPFP prints out either historical or projected data, or both, on user command.

Telcomp service is available throughout much of the eastern U.S. from 50 Moulton St.

Engineers Design Transformers

BEREA, Ohio — Electrical engineers can design transformers of any size with interactive programs developed by Optimized Program Service Inc. and available on GE's Mark II and CSC's Infonet time-sharing networks. Average cost of time-sharing services to develop a transformer should be about \$20, GSP spokesmen said from 30 Park Drive.

Reformatted Listing Shows PL/1 Logic

By Don Leavitt

CWS Staff Writer

MANHATTAN, Kansas — PL/1 programmers can identify, and correct, logical gaps in their coding before compilation, through the Neater2 program from Kansas State University. The package can also be used to speed optimizing of programs during test runs after compilation.

Dedicated to the single task of outlining

logic, Neater2 is said to screen a PL/1 program three to six times faster than the compiler. This makes it more economical to discover errors through Neater2 than through compilations and trial runs, KSU said.

Neater2 is an enhanced version of the Neater package, also developed by KSU and available through IBM. It uses a PL/1 source program as input and shows the

logical structure of the program by printing an indented listing of the statements.

Logic errors are revealed by unexpected patterns of the indented printouts, while syntax errors are flagged by diagnostic messages imbedded at the point of the error.

Counts Usage

The program also reformats source code to eliminate unnecessary blanks, or to clarify the program structure.

Once a program has been through the Logical mode, another Neater2 option, Usage, causes coding to be added to each logical unit of the program which will count and record the number of times that unit is executed. This could identify unexpected runtime patterns. Reworking program logic in the light of these patterns could then result in sharply improved runtimes, KSU said.

Neater2's logic analysis does not require syntactically correct PL/1, university spokesmen noted. Instead the program runs on PL/1 punctuation marks including colons, semicolons, quotes, comments and some basic keywords. If, Then, Else, Do, Begin, Procedure, End and On keywords are recognized, KSU said.

Neater2 is available on a 20-year lease agreement for a one-time charge of \$200 for academic institutions or \$1,000 for commercial users, from the computing center at the university.

Brandeis Unit Creates 'Hawsim';
Simulates Health, Welfare Work

By Linda Fritz

Special to Computerworld

WALTHAM, Mass. — Hawsim, a simulation language developed by the Applied Human Service Systems (AHSS) Project at Brandeis University for health and welfare simulations is also applicable to other types of simulations, the developers said.

Hawsim is a discrete events simulation language, written in PL/1, that produces input to the PL/1 compiler. The Hawsim programmer may intermix Hawsim and PL/1 statements within his coding.

Another feature of the Hawsim precompiler is its adaptability. It allows the programmer to change the language to suit his needs.

The simulation routines, based on GPSS logic, are adapted to health and welfare activities.

For example, the time variables in Hawsim include work time, school time, minutes and hours instead of the arbitrary time units used by GPSS.

The queuing routine in Hawsim was also been adapted to health and welfare situations, in which people generally wait their turn. Hawsim automatically places those who are waiting to be served in a queue or waiting line. In GPSS, this procedure must be programmed separately each time.

The Hawsim output also shows referral patterns which are used in measuring the success of a social agency system.

Hawsim has been used for several simu-

lations of the mental health activities for a county of 130,000 people in Central Illinois and a single simulation for the Government Center area in Boston. AHSS said that health and welfare administrators will be able to use Hawsim for their own studies.

Hawsim was developed under a grant from the National Institute of Mental Health.

Installations interested in the language should contact project leaders at Brandeis in the late spring or early summer. By that time, a project spokesman said, copies of the systems manual and the Hawsim program will be available for the nominal cost of reproducing the manual and wiring the program onto a user-supplied disk.

NCR Adds Basic for Century 100

DAYTON, Ohio — NCR Century 100 users can use Basic-1, a subset of Dartmouth-developed Basic, for interactive problem-solving in either a dedicated or shared-user environment.

Programs developed under the new processor are upward compatible with Basic version previously developed for the Century 200 and 300 systems, NCR noted.

16K Required

The dedicated configuration requires a 16K memory, communications multiplexer and one asynchronous character

adapter for each data line employed and can accommodate up to 15 data terminals. With the "dual" installation, using a 32K memory and an additional disk unit, 16K is devoted to Basic-1, allowing concurrent background processing. The dual version will accommodate up to 10 data terminals.

The dedicated program is priced at \$310/mo on a three-year license or can be purchased for \$9,000. The dual program costs \$365 monthly under a three-year license or sells for \$10,000. Both are now available.

Source Coding Stored, Changes
Listed Using Low-Cost 'DOSLib'

ATLANTA — Users can avoid source program card decks and multiple listings needed to document program changes, with the DOSLib support package from Sigma Sciences Inc. Less complex than some other library maintenance programs, DOSLib is also less expensive in core and cost. It is priced at \$500 and operates in 24K bytes under DOS/360.

DOSLib maintains user source programs, written in Cobol, PL/1, Fortran or Assembler, on magnetic tape or disk. Both 2311 and 2314 units are supported, Sigma said.

As part of the updating of programs on the library, DOSLib prints a list of changes, by program, being made during processing. It also provides a printed directory of all programs, showing the date of the original entry and the latest updating. Cumulative total of all additions, changes and deletions are included.

Control Cards

The package generates all necessary control cards to compile or catalog the user programs, under user option. At the end of an update run, the user assigns SYSIN to the selected device.

In contrast with some library packages that hold complete records of all changes made in each program, DOSLib maintains only the current version. In this way, users cannot inadvertently access and work with a version that is out of date.

In most cases, the activity reports generated during updates can be used to recreate any bad version that a user wants, Sigma noted.

DOSLib is available for a one-time lease charge of \$500, from 3330 Peachtree Road, N.E., 30326.

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613 INFORMATION SYSTEMS

23 Types Available

Dartmouth Selling T/S Programs

By Don Leavitt
Cw Staff Writer

HANOVER, N.H. — Users can acquire, for their in-house systems, any or all of the programs on the Dartmouth College time-sharing library, spokesmen at the college's Kiewit Computation Center said recently.

Subject matter of the programs ranges from anthropology and commercial banking to number theory, statistics and community government problems. Linear al-

gebra, probability theory and programs in 15 other categories are also available, according to Kiewit.

Most of the programs are written in Dartmouth time-sharing Basic, although some are in Algol.

Kiewit said that it will grant requesting organizations temporary permission to access the Dartmouth Time Sharing System (DTSS) to copy the programs desired onto paper tape. Other-

wise the center can supply paper tapes and listings of less than 16 programs.

If more than 15 programs are requested, the center prefers to put them on magnetic tape. The user may supply a tape, or use a tape supplied by Kiewit at cost. In the event a user orders the entire library, cost of the magnetic tape is absorbed by the center, a spokesman noted.

Charges for the programs depend upon whether the user is an educational institution or a commercial installation.

Paper tapes supplied by Kiewit cost \$3 or \$10/program and 50 cent or \$1.50/file referenced, based on the class of user.

The same prices apply for programs copied on magnetic tape, but Kiewit charges an additional \$4.75 for each 200-ft tape it supplies.

A 2,400-ft magnetic tape of the entire library costs the educational user \$300, while the commercial user is charged \$1,500.

Kiewit noted that the programs were developed at Dartmouth College, "and no assurance can be provided that these programs work correctly in all situations."

In-Depth, On-Site Study Shows System Efficiency

SANTA MONICA, Calif. — A user can find out how effective his hardware and software are, and what he can do to improve their efficiency, through the consulting services of Systems Development Corp. (SDC).

A number of analyses should be undertaken in any measurement effort, according to SDC. These include a study of the operating system to determine effectiveness of the allocation and scheduling algorithms.

Compilers, editors, sort programs and other major utilities should be scrutinized to determine if any major bottlenecks exist that are caused by poor coding. The user's programs should be subjected to the same type of analysis, SDC said, noting that this requires measurement tools that can be activated by the user in both time-sharing and batch environments.

Improper utilization of system hardware components can produce bottlenecks that reduce the effectiveness of the remaining components or that increase costs with excess equipment needed to bypass the bottleneck. A thorough analysis of the hardware system can assess the hardware utilization and relate this to user loads and software design, SDC said.

SDC also performs dynamic system audits to determine the true operation of the system, and studies users to determine their difficulties with it. Formal studies can be run to measure user performance, so that the effects of implemented improvements can be measured.

SDC uses commercially available hardware monitors and its own software measurement tools in the analyses. A unique set of

measurement tools called "functional benchmarks" are said to make demands for the basic functions, or services, that an operating system provides, but makes no attempt to represent a real user task.

Although the consulting service is tailored to each user's needs, SDC estimated that the average cost of the service would be in the \$10,000 to \$50,000 range. Systems Development Corp. is at 2500 Colorado Ave.

Printer Used for Graphs Generated by 'Autograf'

CAMBRIDGE, Mass. — Statisticians operating in an IBM OS/360 environment can get help from two separate packages developed by Cambridge Computer Associates.

Autograf uses a standard line printer to generate a variety of graphs, as defined by the user. Profile is a matching, scoring and retrieval system which compares all the records in two files and calculates a score which reflects the degree of similarity between pairs of records.

The Autograf user is able to specify vertical or horizontal bar graphs, scattergrams or line graphs as output. Variation of the bar graph options permit the display of subsections within each bar, or an outline of the end of the bars, to show the general pattern of the data without showing the bars themselves.

Profile is a parameter-card driven system in which the user is able to define and assign weights to the factors to be considered in comparing two

files. From these definitions, the system scores each record on a prime file. Records on the secondary file are also scored.

Results of the Profile comparison can be expressed in purely statistical terms, or in terms of specific secondary records that most closely match prime records.

Formatting options available under Autograf permit the user to position several graphs on a page, or to extend a graph horizontally or vertically over several pages.

Autograf is written in PL/I and requires 256K bytes of storage under OS/360. Profile, an Assembler Language system, must have at least 65K bytes of memory.

On 14-year lease agreements, Profile costs \$17,500 while Autograf is priced at \$7,500. Both packages are also available for three-month or one-year periods. Cambridge Computer Associates is at 220 Alewife Brook Pkwy.

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Tariff May Be Refiled

Illinois Bell Withdraws Isal Proposal

By Ronald A. Frank

CW Technical News Editor
CHICAGO — The Illinois Bell Telephone Co. has withdrawn a proposal to increase rates by more than 600% on intrastate lines tied to computers. The action was taken at the request of the Illinois Commerce Commission, which said it was unable to complete hearings on the tariff before it would have taken effect.

The proposal would have classified two or more phone lines connected to a CPU under an Information System Access Line (ISAL) tariff.

Illinois Bell asked the commission to terminate the case "without prejudice." The action ended a rate proceeding which

began in May 1970, when the Isal rate was first proposed.

Communications

After its initial filing, the commission suspended the effective date of the tariff pending hearings. The suspension would have expired April 3, 1971, and the commission did not have the authority to extend it.

A commission spokesman told CW that Bell had been requested to withdraw the Isal proposal because "there had not been enough time to hear all arguments [for the commission] to

rule on the merits of the case." A spokesman for Illinois Bell said the carrier expects to file a new Isal proposal based on "clarified and updated information."

Several computer users intervened in the case to object to the Isal proposal, which some felt unfairly singled out computer users for the higher line rate.

Before the withdrawal, more than 3,000 pages of testimony were heard in 30 days of hearings.

"Isal is still open for consideration," a commission spokesman told CW, "if Illinois Bell decides to file a new tariff." A Bell spokesman said the carrier "will be going back in," but no date has been set for a new filing.

AT&T Describes Digital Net

NEW YORK — AT&T has released further details on its plans for private line data service using digital transmission, originally announced last September.

The initial service will be point-to-point only and will provide synchronous transmission at 2.4, 4.8, 9.6 and 56K bit/sec rates, according to P.E. Muench, AT&T's manager of Transmission Service Studies.

Multipoint capability, low-speed asynchronous channels and other private line service features are expected to be added subsequently, Muench said.

The private line digital data network, scheduled for operation in 1973 or 1974, will be functionally separate, but physically integrated into Bell System's nationwide telecommunications network. Muench added that AT&T believes the shared use of existing and planned digital transmission system with both voice and Picturephone services will provide significant advantages over a physically separate system.

Primary system for the digital data service will be the T1 and T2 Time Division Multiplexing capabilities that now exist between some central offices. In most metropolitan areas it will be possible to reach any subscriber's end offices via T1 lines, Muench said.

Data Briefs

Controller Matches 2700s

For 60%-80% of IBM Cost

PHOENIX — The i270n front-end communications control system, available from Intercomputer Corp., permits the direct connection of multiple local and remote terminals to the multiplexer channel of an IBM 360 or 370. It replaces IBM 2700 series transmission control units.

The unit can handle from 24 to 176 lines and accommodate terminals operating under various speeds, formats and codes. In a typical configuration, the i270n costs 20% to 40% less than a comparable IBM 2700, the company said, from 2201 E. University Drive, 86034.

GE Develops Cassette Unit

For Terminate 300 Printer

WAYNESBORO, Va. — A magnetic tape cassette unit, developed by GE as an accessory to the Terminate 300 teleprinter, allows data transfer at 1,200 bit/sec, according to company spokesman.

Plug compatible with all Terminate 300 printers, the device uses standard Phillips cassettes. A reverse is provided to allow character-by-character editing of tape records. The unit will cost less than \$1,500 and will be available in July.

Terminal Includes CRT Unit

CORNWELLS HEIGHTS, Pa. —

Batchterm terminals and Multiplexers are intended by Delta Data System to be used for remote data entry. The Batchterm I terminal incorporates a CRT with upper/lower case display, and an impact printer. It can be equipped with cassette recorders and used on- or off-line. It is priced at \$10,500.

The Multiplexers multiplex allows 95 terminals to be polled over a single phone line. Prices start at \$3,000, from Woodhams Industrial Park.

Modem Meets Bell 103A Specs

ACTION, Mass. — The 6103A Data Modem is the first of a family of up to 300 bit/sec asynchronous modems, according to the developer, Bower/ALI Inc.

The modem meets or exceeds specifications for the Bell system 103A series, the company said. It is compatible with either manual or automatic data access arrangements, and full originate and answer mode operation is available with the 6103A. The unit costs \$650 from 531 Main St.

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April 14, 1971

Bits and Pieces

Silent Printing Terminal
Includes Acoustic Coupler

STAFFORD, Texas—A portable version of the Texas Instruments Silent 700 terminals intended for time-sharing applications, the 725 Portable Data Terminal includes a built-in acoustic coupler. The device uses a stable rates of 10, 15 or 30 char/sec. Half- or full-duplex operation is also switch-selectable. Optional features include lower-case alphabet, answerback memory.

The unit is priced at \$3,300 and is available on a 30-day delivery schedule from 12203 Southwest Freeway.

SEL Adds Front End to 72 Mini, Handles up to 64 I/O Channels
LAUDERDALE, Fla.—Systems Engineering Labs has added a front-end enhancement that frees the CPU of I/O tasks, to the 72 Mini. The Mlop can handle as many as 1 million bytes while stealing 1 memory cycle/transfer.

The basic Mlop consists of 16 channels and is expendable to 64 in 16-channel increments, with each channel dedicated to a single device. The front end processor will be available for delivery in July at a cost of \$6,000 from 6901 W. Sunrise Blvd.

Photocomposition Machine Study
Compares, Analyzes 35 Systems

LOS ANGELES—A recently completed study by Composition Information Services, called Analysis of Photocomposition Systems, includes a comparison of 35 photocomposition machines marketed by more than a dozen manufacturers. In addition to documenting and assessing recent technological progress the survey points out opportunities for both vendors and users in the industry, the company said. The study is available at a cost of \$35 from the director, Composition Information Services, Inc., 6331 Hollywood Blvd 90028.

Users Can Now Lease From Extel
VAN NUYS, Calif.—Extel Microsystems, Inc. will offer a lease plan for certain models of its microfilm duplicating equipment. Until now, Extel duplicators were available only on purchase or third party lease.

The new lease plan is available to users on a 6, 12, 24, 36 or 48-month basis and includes a purchase option. Extel is at 15424 Cabrito Road 91406.

Keyprocessing Vails Printer

LOS ANGELES—A line printer has been added to its Key-Processing System by Computer Machinery Corp. The CMC 761 can operate on- or off-line at speeds from 356 to more than 1,000 line/min.

Input can be from data stored on the system's disk or tape files and can operate with up to four Key-Processing systems. The printer will lease for \$450/mo, including controller, from 2231 Barington Ave.

System Makes Enzyme Analysis

FULLERTON, Calif.—Beckman Instruments, Inc. has developed a system for automated enzyme analysis for use in clinical laboratories, the Discrete Sample Analyzer (DSA) 5648 which incorporates a DEC PDP-8/L.

Similar to Calcomp Drive

Marshall Doubles Disk Data Capacity

By Frank Plaia

SAN MARINO, Calif.—Twice the data capacity at 50% more cost than the least expensive IBM 2314 disk drive configuration is offered to 360 and 370 users by the Marshall M2900 Dual Density Direct-Access System.

The increase in capacity is achieved in the same manner as the Calcomp CD 215 drive, by doubling the number of data tracks per 2316-type disk pack to 400 A.

Marshall spokesman said that the possibility of compatibility with the Calcomp device had not been explored.

Marshall has estimated the rental cost of its drive at \$450/spindle, well below the \$600/spindle price of the CD 215. The IBM 2319 works out to \$333/spindle with half the capacity of the dual-density units.

Marshall's M2900 consists of a M2800 controller with dual density adapter and from one to eight drives plus one spare. It

is compatible with models 30 and up of the IBM 360s and all 370s. Marshall said. IBM's OS/DS operating systems can be used without changes, the company added.

The user can connect any combination of the company's current single density M2700 drives and the M2900 dual-density drives to the same controller. A two-channel switch and a read-only switch are optionally available.

Each drive has capacity of 58 million bytes, giving a system capacity of 233 million bytes.

The average access time of the M2900 is 30 msec for 200 tracks and 40 msec for 400 tracks. The Calcomp CD 215, IBM 3330 and the recent CDC 844-2, all of which have 400 tracks, claim an average access time of 30 msec.

Installation of the M2900, Marshall said, is accomplished with minimum user problems. The drive is generated in the IBM operating system as two 2314s which may be used separately. The module ID plugs are identical and interchangeable with those of a 2314.

The M2900 will be available for delivery in July 1971 from 2065 Huntington Drive.

High-Speed Accuracy Is Claimed
For Gerber 462 Drum Plotter

SOUTH WINDSOR, Conn.—Gerber Scientific Instrument Co. has introduced what is claimed to be the largest, fastest and most accurate drum plotter system available.

The company has in the past limited itself to plotters of the flatbed variety.

The Model 462 features a drawing speed of more than 1,600 in./min (25 in./sec), said to be three times as fast as any competitive unit. The ability of the device to accelerate from zero to maximum in less than 30 msec is credited for the rapid rate and is made possible by a novel servo drive, Gerber said.

The system is also credited with a level of accuracy equal to other plotters operating at one-third the speed.

The system consists of the Gerber 400 controller that uses magnetic tape as an input device, and the Model 62 drum plotter. The tape drive is an IBM-compatible device that reads 800 bit/in. 9-track tapes.

The main component of the control unit is a Hewlett-Packard 2100 minicomputer with 4K 16-bit words of memory. Velocity computations for optimum speed control are provided as part of the system's basic software package.

The drawing head on the standard plotter is capable of 36 in. of travel in the

Y direction for the two outside pens of a three-pen assembly that draws either liquid ink, ball point or felt tip.

Standard drawing sizes up to and including E-size (34 in. by 44 in.) and roll size (36 in. by 125 ft) can be accommodated on the standard 44 in. drum without requiring interchanging of drums. The unit can plot in lengths to 125 ft. in unattended operation, the company said.

System Speeds Data Collection

WESTWOOD, Mass.—A turnkey system based on a DEC PDP-8/E or 8/L, the Identec Information and Control System from Computer Identics Corp. is used to automate materials handling and data collection in inventory, cost control, and similar applications.

The system incorporates optical-electronic scanners that can read bar code, a minicomputer to provide control and a teleprinter for operator communication. Used for such applications as product coding and scanning, and direct control of materials handling devices, the system can use coding geared to the specific information needs of the user. The coding identifies the product in man- and ma-

chine-readable terms and provides the input that enables the system to automatically monitor, control and report on product movement.

The scanners read coded products passing at up to high speed within a 24 in. by 24 in. scanning curtain.

Several scanners can be multiplexed to a single minicomputer. As many as 60 units can be attached to a 32K processor, the company said.

The minimum configuration, consisting of a 4K minicomputer, a scanner and a teleprinter is priced at \$25,000. It is available on a 90-day delivery schedule from Southwest Park.

Verimatic Reduces Verifying
In Many Card Installations

NORRISTOWN, Pa.—The Verimatic 70 from Peripheral Sciences can probably eliminate key verification in many punch card installations, and at the very least simplify the process in other sites.

The tabletop unit, called the industry's first fully automatic verifier/editor, is designed to be used by installation as well as few as eight keypunches and can process up to 18,000 card/hr.

Consisting of a card reader, serial printer and logic circuitry, the Verimatic is programmed in a manner similar to that used with a keypunch to identify proper field definitions, and check for illegal punch formats, improper duplications, range-check errors, validity errors and illegal check digits.

The unit uses a 63-character table to compare data against constants. It can check zero balancing and perform "power of 10" checks. It can also list and total multiple fields accepting positive and negative entries for control purposes, the firm said.

Operator statistics for the installation can be accumulated, with such details as number of cards processed, number of error cards and total number of error keystrokes accumulated for each operator.

Error cards are listed in an exception report on the printer showing an identifying field, number of columns in error and error code. The card handling mechanism bends the corner of each "error" card to aid retrieval.

The Verimatic will lease for \$495/mo, or sell for \$19,980. It will be available in May from 203 East Main St., 19406.

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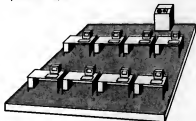
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 **INFOREX**

Electronic Cash Register Aimed at Large Retailers

ORANGE, N.J. — Litton Industries has combined the expertise of its Sweda International Cash Register Division with its Kimball Price Ticket Division to come up with an electronic cash register system for large retail establishments.

Although available in off-line mode, the terminals reach their full potential only when used in an on-line configuration equipped with the optional Datapen magnetic scanner.

Called the Series 700, the system can include from 16 to 256 terminals tied to a minicomputer-controlled management information system. This configuration includes the Sweda 710 processor, disk files, magnetic tape, line printer and credit authorizer and manager terminals.

The system is capable of processing accumulated operating data in-store, providing immediate sales audit, volume and performance figures to branch store management. Each local store within a chain also maintains communications with a

headquarters data center, transmitting summarized daily operating figures, sales data and accounts receivable information.

Credit checking from the retail terminals is provided for 200,000 to 1.6 million accounts.

The terminals are available in three configurations. These include: Model 726 with full internal logic and programming that captures data on tape cassettes for off-line processing; Model 725, equipped with two-way communications capability for automated credit checking and central data collection; and the Model 720 on-line terminal in which all functions are programmed and controlled centrally. All 720 operations are recorded on-line providing management with up-to-date business indicators from any or all departments of the store.

In the event of a system malfunction, on-line terminals can be used off-line as conventional cash registers. The list price of the point-of-sale unit is



Sweda 720 Action Terminal includes a cash drawer, with keyboard.

\$2,800 for the dedicated terminal, \$3,000 for the stand-alone terminal, and \$3,750 for the stand-alone with tape cassette.

The price of a typical 80 terminal system, including station controllers, processors and magnetic tape data collection plus a manager's terminal would cost about \$268,000 (\$3,360/terminal). The



Datapen reader is priced at \$600 and the label and tag encoders are leased at from \$270/mo to \$350/mo.

The Series 700 System will be available for installation starting in August 1971 from Sweda International at 550 Central Ave., 07051.

Banking Peripherals Added to 200, 6000 Series by Honeywell

WELLESLEY HILLS, Mass. — Honeywell has added to its equipment for the banking industry by introducing four MICR-handling devices; two versions of the Type 236 reader-sorter, a programmable controller for the 6000 series and a low-cost MICR terminal.

The 236 reader-sorter is available with controllers to adapt it to either the Honeywell 200 series (except the 110 and 8200) or the large-scale 6000 series.

The 236 can handle as many as 1,625 standard or 1,700 short document/min. On-line, the 236 can operate as either a data collection system or as a self-sufficient MICR entry, proof and transit system for such standard operations as demand deposit accounting and automated proof, transit and customer account reconciliation.

Expansion is available for numerous transit stations. The basic 16-pocket device can be expanded to 32 pockets in 4-pocket increments.

Off-line, the 236 can be used for fine sorting of all types of MICR documents.

The prices of the Type 236 reader-sorter for the Series 200 begin at \$2,600/mo on lease and \$131,870 purchase. First deliveries will be made in December 1971.

The DRD 236 reader-sorter, for use with the 6000 series, will be available in March 1972. It will lease from \$4,545 with purchase prices beginning at \$236,720.

The Type DEC 6000 Data Entry Controller enables the input processing of magnetically and optically encoded documents in the Series 6000 document entry subsystem and allows multiprogramming operating system support for document entry.

The controller utilizes up to six document handlers concurrently on up to four different prime-entry jobs.

The DEC 6000 controller will lease for \$2,154/mo and sell for \$116,000. It will be available in March 1972.

Remote Terminal

The six-stacker DRD 203-1 remote MICR terminal reads at speeds varying from 350 document/min on-line to 830 document/min off-line. It is used with a console printer. Communication modems provide the necessary interface at both remote and central sites.

The console teleprinter operates at 30 char/sec and includes a 118 character-wide print line and answerback to provide identification of the remote unit.

In the off-line mode, the device is capable of running at a speed of up to 830, six in. document/min.

The lease price of the unit is \$694/mo and sells for \$35,650. It will be available in December 1971.

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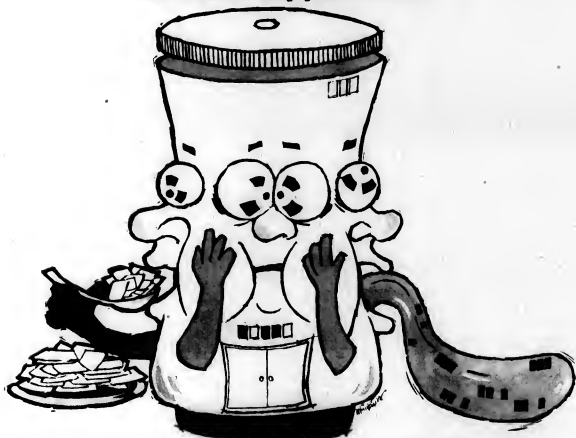
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Peripherals,
it should be in one of
our three supplements.**



Our February 24th Inputs Supplement

- Which user sites can make best use of various keyboard input systems?
 - What type of keyboard input system for you?
 - What are the future trends in remote batch?
 - Keypunches - new life in an old medium.
- Our *Independent Peripherals Inputs Supplement* closes Feb. 5. Reserve your advertising space by filling out the coupon below, or contact your local Computerworld representative.

Our March 31st Memories Supplement

- will feature:
- Which user sites can make best use of bulk memories?
 - Can independent suppliers continue to provide savings to computer users?
 - The trend to disks.
 - What can independents offer besides lower prices?
- Our *Independent Peripherals Memories Supplement* closes March 12. Reserve your advertising space by filling out the coupon below, or contact your local Computerworld representative.

Our April 28th Outputs Supplement

- will feature:
- Which users can make best use of COM (computer output microfilm)?
 - Can plotters have any applications to business?
 - Printers - impact vs. non-impact, speed vs. copies.
 - Is off-line output worth the cost?

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COMPUTERWORLD
THE NEWSLETTER FOR THE COMPUTER COMMUNITY

Simulation Study Wins Best Paper

TAMPA, Fla. - A simulation study on aircraft ground operations won the \$500 "best paper" award for Peter Sih at the fourth annual Simulation Symposium here last month.

Other dissertations included queuing theory, commercial and industrial simulation, and even a simulation of the U.S. Supreme Court.

Sih is an associate with Tippetts-Abbett-McCurly-Stratton, a New York consulting firm. His recent work has concentrated on computer usage for transportation, agricultural economics and simulation studies.

Douglas E. Van Housweling, vice-president of the symposium, announced a \$1,000 grant program for researchers using simulation, but details were not immediately available.



COMPUTERWORLD

societies/user groups

2 ACM Amendments Pass

NEW YORK - Members of the Association for Computing Machinery (ACM) have approved by a wide margin two constitutional amendments, including one which calls for the creation of standards to maintain the "integrity and competence" of members.

The other amendment enlarges the powers of the editorial board and changes its name to "publications board." The new board will control all ACM publications, from both editorial and

production viewpoints.

Under the first amendment, lack of integrity or "other reasonable cause" could bring expulsion from the association, which is thus chartered to "adopt, maintain, enforce and conspicuously publish and display" a code of ethics (CW, March 10).

Under the publications amendment, the editorial (publications) board chairman will no longer be listed as an officer, but will retain his ACM Council membership.

Pressing Engagement

The president of the American Business Press, Charles S. Mill, presents the Jesse H. Neal Award for editorial achievement to Kate Rachstein, for her contributions to *Computerworld's* privacy/data bank series of editorials. Mrs. Rachstein, CW's executive editor at the time of her contributions, accepted the plaque on behalf of the other two recipients, Executive Editor Robert M. Patterson and staff writer Joseph Harlan. Presentation took place at a recent ABP luncheon in New York. Prof. Floyd G. Arpan, chairman of the judging board, reflects approval.

Calendar

April 17-26, Petit St. Vincent, West Indies - Seminar for Operations Research, Management Science and Computer Science Managers. Contact: Haverly Systems, Inc., 4 Second Ave., Denville, N.J. 07834.

April 18-21, Chicago - Association for Systems Management's 1971 International Systems Meeting. Contact: R.B. McCaffrey, ASM, 24587 Bagley Rd., Cleveland, Ohio 44138.

April 19-22, New York - Design Engineering Conference sponsored by the American Society of Mechanical Engineers. Contact: Clapp & Polak, Inc., 245 Park Ave., New York, N.Y. 10017.

April 20-23, Los Angeles - 24th Annual Southern California Business Show with the theme "Gateway to Profit." Contact: Show Sponsor - Los Angeles Chapter, National Association of Accountants, P.O. Box 6359, Los Angeles, Calif. 90055.

April 20-21, Berkeley, Calif. - Users Conference on IBM's APL Language. Contact: Karl Korn, APL Users Conference Committee, APL General Inc., 433 Latona Ave., Trenton, N.J. 08618.

April 20-22, Phoenix, Ariz. - Univac Users Association Spring Conference. Contact: C.W. Rachel, Executive Secretary of the UUA, Univac Division Sperry Rand Corp., P.O. Box 500, Blue Bell, Pa. 19422.

April 21-23, Atlanta, Ga. - Southern Computer Conference. Contact: Duggan Enterprises, 66 Luckie St., Atlanta, Ga. 30303.

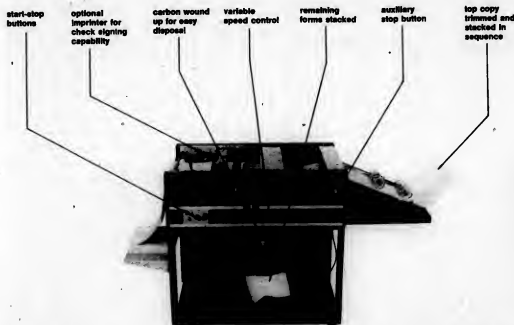
April 24, Cambridge, Mass. - Course, "A Programmer's View of New Memory Organizations," presented by the Greater Boston ACM Chapter SIG/Real. Contact: Robert Kunik, Citicorp Systems, 1 Broadway, Cambridge, Mass. 02142.

April 26-28, Baton Rouge, La. - 6th annual Instrument Maintenance Management Symposium with the theme "New Techniques for a New Decade." Contact: Registration Chairman, 6th National Instrument Maintenance Management Symposium, P.O. Box 15921, Baton Rouge, La. 70815.

April 29, Washington, D.C. - Annual Telecommunications Meeting sponsored by the National Retail Merchants Association (NRMA). Contact: Irving I. Solomon, Vice-President NRMA, Information Systems Division, 100 West 31 St., New York, N.Y. 10001.

May 2-5, New York - 1971 National Automation Conference sponsored by the American Bankers Association. Contact: Phyllis Barnett, Conference Coordinator, 1971 National Automation Conference, American Bankers Association, 1120 Connecticut Ave., N.W., Washington, D.C. 20036.

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More Social Issues

Afips to Evaluate CPP Suggestions on Joint Sessions

By Edward J. Bride

CW Staff Writer

WASHINGTON, D.C. — The sponsors of the joint computer conferences and the only politically active group of computer workers have agreed to explore the possible expansion of this spring's conference to include discussions of pressing social issues.

At a lengthy meeting here recently, the American Federation of Information Processing Societies (Afips) agreed to evaluate suggestions by the Computer People for Peace (CPP), regarding the scheduling of special sessions on unemployment and prejudice in the computer industry, plus "social uses" of computers.

CPP was given until April 14 to come up with concrete suggestions for these meetings, after which Afips would evaluate the ideas and reply within 48 hours.

CPP was to name the actual sessions, solicit participants and submit papers.

Both sides reported a degree of cooperation and satisfaction after the March 31 meeting, held at the request of CPP after being "neglected" from conference planning.

Societies

An original demand was apparently tabled after it was reported that ACM's Special Interest Group on Computers and Society would conduct such a meeting.

The other planned topics include unemployment and inflation, woman's role in the computer industry, social uses of computer technology and computers and

the military.

DP Worker's Job Market

CPP formerly had "Professionals" as the middle word of its title, but now uses "People" to denote its interest in the workers, as opposed to management. It is for this reason that CPP has been critical of an SJCC session on "The computer professional and the changing job market," which will examine "changes in personnel requirements."

The group's publicity asks about the needs of employees, of laid-off workers, and also asks why the country's "fastest growing industry refused to fight poverty and racism, except where it benefits in tax write-offs?"

The racism issue encompasses woman's role, and CPP has criticized the conference and the industry in general because

"women management policy makers are almost nonexistent."

The "negative" military applications CPP plans on discussing will include the "ramifications of our increasingly computerized war," the extent of computer usage in Indonesia, the need for an ABM system and "what is the 'electronic battlefield'?"

The other session would discuss health, housing, mass transportation, education and social service systems, as they can be improved by computer technology.

The group has been firm in "demanding" inclusion of these topics in the regular SJCC program especially in light of the conference's slogan, "responsibility."

Balanced Panels

The Afips representatives, including President Richard I. Tenake, told the group's members to prepare the sessions and assure balanced panels of speakers, and report back for final discussions this week.

Conference Chairman Dr. Jack Moshman called the meeting "amiable" and predicted "at least some" of the CPP proposals would probably be "acceptable" for scheduling.

Others had already been included in the Afips planning, and Moshman invited CPP representatives to seek participation in these sessions by contacting individual moderators.

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NSF Seeks Funds for CAI Program

WASHINGTON, D.C. — The National Science Foundation is asking Congress to fund a five-year pilot program to test and evaluate two complete computer-assisted instruction systems.

In testimony before the House Subcommittee on Science, Research and Development recently, Dr. Thomas B. Owen, assistant director for test and international programs, asked for approval of \$17.5 million in research funds for computing activities in fiscal year 1972.

The two CAI systems, according to Owen, feature developments that reduce costs. The

first has an "innovative" student terminal, self-storage capacity and uses the telephone network. The second uses a minicomputer together with innovations in television technology.

One test will determine whether a suitable stand-alone system of computer-assisted instruction can be provided at a cost of a small school district can afford. The second test will determine whether a large centralized computer facility can be provided that will be attractive to large urban public school districts and universities.

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DATA COMMUNICATIONS

a Computerworld news section about the nation's fastest growing industry

April 14, 1971

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CI Notes

Ampex Has 360 Memory

CULVER CITY, Calif. — In addition to a mainframe memory replacement for the IBM 360/30, Ampex will announce a mainframe memory replacement for the 360/65, 67 and 75 next week. The ARM 2385 unit will replace the main memory on the machines without hardware or software changes. With a cycle time of 750 nsec the unit is modular and can be expanded to the maximum IBM mainframe capacity (1 million bytes on the 65 and 67, 2 million on the 75). Each ARM 2385 has 262,144 bytes of memory and four boxes can be added to the 65 and 67, eight boxes to the 75. The purchase price will be \$308,800 and the unit will be leased for \$7,400/mo., approximately 20% off the IBM price.

Commerce Bans Export Privileges to German Firm

WASHINGTON, D.C. — The Department of Commerce said last week that System Technik GmbH of Frankfurt/Main, West Germany, an importer and dealer in computer parts and accessories, and Bruno Kaebler, one of the firm's operators, have been denied U.S. export privileges.

The denial is tied to a curb on export privileges Commerce imposed upon Johann Nitschinger and Comp-Data GmbH of Vienna, Austria, last April. Both companies, according to Commerce, are closely connected.

Sycor Begins 340 Shipments

ANN ARBOR, Mich. — Sycor, Inc. has announced volume shipments of its new Model 340 Communications Terminal. Companies which received the first Model 340 terminals include Inland Container Corp., U.S. Department of Justice, Conoco Plastics Division of the Continental Oil Co. and Mutual Hospital Insurance, Inc. (Blue Cross of Indiana).

Supershorts

Computer Logic Systems, Inc., has signed a license agreement with the Aibnab Industries allowing Aibnab to manufacture its CLS-18 minicomputer for its own use, and as part of various electronic systems Aibnab will produce.

A service agreement between Digital Equipment Corp. and Tennecomp Systems, Inc. has been extended to cover customers in Canada. Under the agreement, DEC's field service personnel perform service on three models of Tennecomp peripherals.

Computer Communications, Inc. has been selected to supply to the specifications of the Midwest Stock Exchange Service Corp., a nationwide computerized high speed message switching and brokerage data processing network. The original phase of the contract will be valued at \$1.2 million.

The new PDP-16 Functional Computer, introduced by Digital Equipment Corp. at the IEEE Show, is reported off to a good start by quoting nearly \$3 million during the four-day show. The PDP-16s are priced from \$800 to \$3,000.

\$5.8 Billion by 1980

Study Maps Data Communications Growth

By R. Drake Lundell Jr.

CW Computer Industry Editor

NEW YORK — The data communications market will expand twenty-fold during the 1970's, and will become a \$5.8 billion market in 1980, according to a report on "The Specialized Communications Common Carrier Market" prepared by Frost & Sullivan, Inc.

In 1970 the total data market amounted to \$280 million, according to the report, with \$70 million coming from data users of the switched network and \$210 million

coming from data users using leased lines.

By 1975 the total data communications market will be valued at \$1.67 billion with \$600 million of that spent on switched networks and \$1.07 billion for leased data applications. In 1980 \$2.4 billion will be spent by data users over switched networks and \$3.3 billion will be spent to lease communications lines, the report states.

The annual growth rate for switched uses will run around 50% up until 1974

when it should jump to 65% annually because of the marketing operations of the new specialized common carriers, such as Dairan and Microwave Communications, Inc., the report says.

The specialized common carriers will also spur the growth of leased line data use, the report states, which should grow by 50% a year in 1974 and 1975, up from a growth of 30% to 40% yearly between 1970 and 1974.

The mid-decade years will see the peak of the growth rate in data communications, according to the report. By 1980 the switched applications will be growing at a rate of around 20% a year and the leased data lines growth should be slowed to around 15% to 20% annually, the study predicts.

Frost and Sullivan said that these estimates "may prove conservative. Should there be substantial declines in the cost of communications service and data modems, the markets could expand faster. As it is, the projections are conservative in view of past experience."

Growth in the value of data communications will be provided by the growth in terminals used for on-line applications, according to the report, which estimates that there will be a three-fold increase in the number of data terminals compared to only a three-time increase in the number of installed computers by 1978. In 1970, the study estimates that there were 49,000 general-purpose computers installed and that 25% or 12,250 were used with some sort of terminals. The number of terminals in use in 1970 was 260,000, Frost & Sullivan reported.

By 1978, according to the report, 65% of the 133,700 installed computers, or 87,000 computer systems, will be using terminals in some applications and the total number of terminals in use will hit 2,551,000 in that year.

The growth rate for installed computers will run between 10% and 15% between 1970 and 1978, while the growth for computers using terminals will be 16% to 36%. The largest growth will come in the number of installed terminals, which will run between 25% and 40% per year.

Memorex's Cross-Complaint Suit Concerns IBM Worker Defection

By a CW Staff Writer

SAN JOSE, Calif. — The battle between IBM and Memorex entered a new phase last week when Memorex filed a cross-complaint in state court here asking \$3 million in actual damages and \$1 billion in punitive damages.

In reaction to the suit, IBM said that it "considers the Memorex cross-complaint to be without merit and an expected tactical reaction to IBM's trade secret suit against that company."

Illegal Means

In the cross-complaint, Memorex charges that IBM used illegal means to prevent IBM employees from defecting to Memorex and that it has attempted to prevent potential customers from buying or leasing Memorex equipment.

The suit was filed one week after Memorex filed in reply to the IBM suit brought last December charging illegal appropriation and use of IBM trade secrets and confidential information. IBM is trying to stop Memorex from hiring IBM employees from its San Jose plant for the purpose of getting confidential information.

Around the same time that IBM had filed that suit against Memorex it also filed suit against a former employee, Dr.

Richard Stock, charging appropriation of confidential information, in what is becoming known as the IBM fall offensive. Stock is now employed by Information Storage Systems.

In its counter charges, Memorex claims that IBM has said that Memorex equipment would be made obsolete or incompatible because Memorex would not be able to keep up with planned changes in IBM computer systems.

Memorex also charges that IBM threatened customers with service reductions if the customer began doing business with Memorex.

Memorex said that IBM took the steps against it because of erosion in the disk marketplace. This erosion "constituted a loss of significant revenue and profit to IBM because of its past dominance of 100% of the market," according to the Memorex filing.

Memorex said that IBM employees were leaving IBM because of, "among other things," poor morale among the employees at the San Jose plant, lack of recognition on the part of IBM in both the areas of compensation and advancement, and "bureaucratic and regimented working conditions which are often inferior in companies the size of IBM."

Tape Technology Outdistances Drives

By Malcolm L. Stiefel

Specialist to Computerworld

GRAHAM, Texas — A new magnetic particle developed by Graham Magnetics, Inc. will permit a 5-fold increase in packing densities, up to 8,000 or more bit/in. on the next generation of magnetic tape, but users won't profit from it until new tape drives are developed to handle it.

Even when 8,000 bit/in. equipment becomes available, the benefits will be realized by the big computer users; smaller machines with limited core space won't be able to operate efficiently with the high-density tape.

The new material, called "Cobaloy," exhibits a much larger hysteresis loop than particles in other commercially available magnetic materials.

The saturation magnetization of Cobaloy is 980 electromagnetic unit/centimeter, two to three times the value of others, and the coercive force needed to reverse the direction of magnetization is 1,000 oersteds, also two to three times as high as the coercive force required in competing particles.

These properties combine to permit a significant increase in maximum bit density, but a Cobaloy-coated tape will require a much stronger write pulse than existing tapes.

Special recording head material, such as

State of the Art

manganese zinc-doped ferrite, (which is already available) would have to replace conventional head material. And recording gaps will have to decrease in the new tape drives. (An acceptable 12 in. gap is already obtainable.)

If full advantage is to be taken of the new medium, it will be necessary to write on several tape channels in parallel simultaneously, as in current 7- and 9-channel tape.

But this produces a significant skewing problem. At high bit densities, very little vertical misalignment is permitted between the different bits of a given byte. New techniques of skewing control, such

as the use of skew reference channels or the use of laser alignment sensors, will be needed on the new drives.

Graham has pointed out that the skewing problem could be eliminated if the information is written serially by bit, serially by byte (i.e. a one-channel tape). If this route is taken, it would be necessary to write on channel one, from the beginning to the end of the tape, then on channel two back to the beginning, then on channel three back to the end, and so on.

This technique would allow an increase in information storage density, but wouldn't improve the data transfer rate at all, assuming no change in tape read/write speed.

However, if the skewing problem is solved, then a 9-channel 8,000 bit/in. tape at 120 in./sec. can transfer 960,000 char/sec. at an 800 bit/in. tape.

The intercard gap will continue to limit the effective application of Cobaloy tapes, until large, inexpensive main memory systems are obtained. Malcolm L. Stiefel is an independent data processing consultant.

ISS Disk Drive Has 58 Mbyte Capacity

CUPERTINO, Calif. — The ISS 715 disk drive from Information Storage Systems, Inc., offers a storage capacity of 58 Mbytes using 406 cylinders on a standard 2316 disk pack. The unit has an average access time of 29 msec with track-to-track access of 7 msec and a maximum access of 55 msec.

The universal interface design of the ISS 715 makes it compatible with a variety of industry computer equipment and it is adaptable to controllers capable of handling a 312,000 byte/sec data rate, the company said.

The ISS 715 is priced at \$14,500 in quantities of 50. First units will be delivered in June from 10435 N. Tantau Ave., 95014.

Mostek Has Shift Register For CRT, Buffer Memory

CARROLLTON, Texas — The MK 1007 P, a 4 by 80-bit MOS dynamic shift register, provides TTL/DTL compatibility at all inputs and outputs, including the single-phase clock input, according to the developer, Mostek Corp., an affiliate of Sprague Electric Co.

The unit has particular application in line memories of CRT display devices and in the buffer memory units of punched card readers, the company said.

The MK 1007 P features a clock frequency range of 10 KHz to 2.5 MHz over the operating temperature range of 0°C to 75°C. Reducible logic is included on the chip at each of the four inputs. Units may be cascaded for longer memory applications if desired. Recommended power supply voltages are +5 V and -12 V. A 16-pin ceramic dual-in-line (C DIP) package is employed.

Prices are \$13.50 each in quantities of 100 or more, with immediate availability from the firm at 1400 Upfield Drive, 75006.

Litton Strip Printer Debuts
MELVILLE, N.Y. — Litton Datalog MC-100 non impact strip printer provides hardcopy at less than \$200 in OEM quantities.

The MC-100 prints 10 char/sec to 65 char/sec with only one moving part, the paper feed. Printout is on 5/8 in. wide paper

that comes in cassettes, priced at \$1 fully loaded with 350 feet of paper.

The MC-100 weighs 1-1/2 lbs. with a variety of optional mounting configurations available. It is fully DTL/TTL-

New OEM Products

compatible. Datalog Division is at 1770 Walt Whitman Road, 11746.

TDM Incorporates Plug-In Data Set Replacement

CANOGA PARK, Calif. — American Data Systems, (ADS), has developed a Data Set Replacement (DSR) interface card for use with its ADS-600 Series

time division multiplexers. The device may be compatibly used as a replacement for the existing low-speed channel interface cards in all ADS multiplexers.

The card consolidates an answer mode, 0-300 baud, Bell 103 series-compatible data set with a time-division multiplexer, low-speed channel interface onto one compact module that fits into the identical interface card space of the ADS-600 series time division multiplexer.

The current price for the Data Set Replacement interface card module is \$300, in place of the \$150 interface card module price for all previous EIA or current loop interfaces. The card can also be leased from ADS for approximately \$10/mo, from the firm at 8851 Mason Ave., 91306.



Mostek 1007 Shift Register



ISS 715 Disk Drive



Datalog MC-100 Strip Printer



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Expensive Now, But...

Read Mostly Memories Price Drop Seen

TROY, Mich. — Read mostly memories (RMMs), which are re-programmable read only memories (ROMs) using amorphous semiconductors, are still generally considered too expensive to replace ROMs. But Energy Conversion Devices (ECD) predicts the price of RMMs should drop to within 20% of that of bipolar ROMs and could capture up to 15% of the market.

Initially, RMMs will be used in applications where memories must be changed, but only infrequently.

Applications

Control codes for peripherals and for terminal identification codes are seen as possible applications.

In the latter case, a leased terminal could have an identification code programmed into it before it is sent out to the user, and the code could be easily changed if the terminal were later rented to a different user.

Industry sources suggested that another possible use would be for decoding units in secret installations. The code could be periodically changed, and it would be possible to rapidly wipe out the decoder in case of emergency.

Reprogramming

Energy Conversion Devices guarantees that the RMMs can be reprogrammed 600 times,

which is adequate for applications utilizing infrequent reprogramming, but means that RMMs will have little use in computer memories in the near future.

ECD is presently producing a 256-bit RMM selling for \$120, which contains no reading or writing devices. Reading devices for RMMs can be built from slightly modified ROM readers, but writing is more of a problem.

Manufacturers or users will be expected to build their own programming units from ECD-supplied plans.

ECD has built a few programming units, including one which works from paper tape and can be carried in a suitcase. ECD expects that eventually servicemen will carry these units.

ECD sees no applications in the near future where programmers will be built into the device which actually uses the RMM.

An amorphous semiconductor is a piece of glass in which the molecules are normally totally disordered, but which also has a stable state of partial order.

In its disordered state, its resistance is 300,000 Ω ; in its partially ordered state, resistance drops to 500 Ω .

Electric Pulse

A short electric pulse is required to change the state: 25 V for a fixed time drops the resistance while a higher voltage for a shorter time switches the unit to high resistance.

The unit is read by applying a small voltage and testing the current that flows, which tells the amount of resistance. If the read voltage is low enough, it does not disturb the resistance of the units.

Business 'Buddy' Born

WASHINGTON, D.C. — In an effort to improve communication between government and business, Secretary of Commerce Maurice H. Stans has announced creation of an ombudsman for business in the Department of Commerce.

Named to the new post was Thomas E. Drumm, Jr., a senior Commerce official.

DECwriter LA 30	An impact printer with a quiet, and more reliable, 30 lines printing, 94 character set, ASCII 128 character keyboard.		
DECterminal VT 08	A low-cost CRT and keyboard for direct computer input/output, teletype, phone line transmission, AS interface built in. Full ASCII keyboard, 1800 character image area.	All PDPs	Convenient storage of programs and data files in installations where several people use same computer.
DECpack RK 02, 03	A disk file with moving head under electronic control. Reliable and quiet operation. Capacity 10 million bits, with 80 ms average access. Compact and low cost. Interchangeable disk cartridge.	PDP-11, 8, 12	High quality alphanumeric printout for business and scientific reports.
DECprinter LP 08, 11, 12, 15	A low-cost, high-speed line printer with 80 or 132 columns and 64 or 96 character sets. Basic speed of 350 lpm can be increased to 1100 lpm for a 20-column line. Up to six-part forms for multiple copies.	PDP-11, 8, 12, 15	Low cost file and program storage, preparation of data for processing on other systems, backup for disk files.
DECmagtape TU 10	This magnetic tape system is IBM-compatible at 45 ips speed densities: 200, 556 and 800 BPI, and 7 or 8 channels. Vacuum column and a simple mechanism make it extra reliable.	All PDPs	Monitor program residence. Data file storage.
DECdisk RS 04	A low-cost, fixed-head disk with nominal capacity of 54K 16-bit words, expandable to 556K words. Average access time 16 ms. Real-time look ahead capability and cyclic redundancy error check.	PDP-11	Reliable, high speed alternative to paper tapes. Used for program & data file storage.
DEClape TU 56	A simple, compact, highly reliable magnetic tape system of proprietary design. Pocket-sized reels contain 2 x 10 ⁶ bits. Read, write, search, or update in forward or reverse direction at high speeds.	All PDPs	Manuscript editing, source data entry, interactive computation, file scanning and updating.
DECscope VR 14	A versatile, low-cost CRT display. Combines high speed and high resolution for graphic and alphanumeric display. Features easy-to-read 60 square inch screen.	All PDPs	

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COMPUTER PROTECTION INSURANCE WORKSHOP

Monday, June 14, 1971, PICK CONGRESS HOTEL—CHICAGO

Produced jointly by the publisher of BUSINESS INSURANCE news-magazine and the publisher of COMPUTERWORLD newsweekly

To help you solve your computer problems of safety/security/insurance, the publisher of Business Insurance and the publisher of Computerworld are planning an exciting three-day workshop that promises to give you a long way toward giving you peace of mind about your computer installation.

The workshop, to be held in Chicago on June 14, is a unique opportunity for you and other key executives within your organization who are responsible for the "complete picture"—for the total safety/security/insurance of the computer operation.

It will also be of special interest to executives whose corporations are planning to use a computer either on an in-house or share-the-time basis.

The workshop will be equally interesting to insurance carriers, agents and brokers, and safety/security suppliers to the computer industry because it will give them a much deeper insight into the problems that face corporate management and how those problems are being solved.

The workshop will be an extremely busy, full day experience for you. Sessions will be conducted by some of the nation's foremost authorities on the safety/security/insurance problems involved in your computer operation. The distinguished "faculty" is being selected now by the editors of Business Insurance and Computerworld based on the individual's knowledge, practical experience in the field, and ability to communicate to a workshop audience of management executives.

If you have any doubts about the safety/security/insurance of your computer installation... if you wake up worrying whether you are fully and properly protected... if you want the assurance of comparing your

computer risk-management methods with those of other companies... and if your mind is wide open to absorbing the latest ideas, techniques and methods of "risk-free" computer management—then this one-day workshop is for you!

An Early Sell-out Expected

A great deal of interest in this workshop had already been expressed before the decision was made to go ahead with it, and before any announcement was made in Business Insurance or Computerworld.

We sincerely believe that because this workshop offers much-needed, timely information to corporate management about the risks involved in the computer operation—and knowing what to do about those risks—that registrations at the workshop will be spoken for quickly.

Here are the details. Then, simply use the coupon below to send your advance registration promptly.

The Computer Protection/Insurance Workshop will be held at the Pick Congress Hotel overlooking Chicago's beautiful Grant Park, on Monday, June 14. The registration fee for the full day's program (including a continental breakfast, full lunch, two coffee breaks and a special workshop notebook) is \$105—with an early registration fee of only \$90. By registering now before June 1, you save \$15. Additional registrations from your company, when submitted together, cost only \$75 each.

If your plans change later on, you are entitled to a full refund (less a \$15 handling charge) if you are notified before June 14. Use the handy coupon below to send in your Advance Registration today. That way you'll avoid the disappointment of an early sell-out, while taking advantage of the substantial discount.

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Please register the following for your workshop at the Pick Congress Hotel, Chicago, Monday, June 14, 1971:

☐ I am enclosing a total of \$_____, figured at \$90 for the first registration (if postmarked before June 1), otherwise \$105, and \$75 for each additional registration from the same company. ☐ Bill me. CW 14

NAME _____	TITLE _____
FIRM _____	
ADDRESS _____	
CITY _____	STATE _____ ZIP _____
Additional registrants _____	

REFUND GUARANTEE: If my plans change and I cannot attend, I will receive a full refund (less a \$15 service charge) if I notify you before June 14.

NOTE: The registration fee includes a continental breakfast, two coffee breaks, full lunch and a special workshop notebook.

☐ Check here if you want the Pick Congress Hotel to send you room information.

Expansions

DAYTON, Ohio—NCR is expanding its data center operations for the 11th consecutive year. The 1971 expansion program, involving an investment of \$3 million, will include the establishment of processing centers in Hightstown, N.J., and San Antonio, Texas.

NCR will also open two new data centers in Japan, one in Sapporo and one in Hiroshima. This will bring to seven the number of such facilities in Japan. Another data center will be established in Essen in the

Ruhr region of W. Germany, the fifth such facility there.

Other Expansions

Data Technology Industries, formerly Data Technology, Inc., is now at 3202 Curtis Drive, Marlow Heights, Md.

Data Disc has moved to a 35,000 sq ft plant at 636 W. Maude Ave., Sunnyvale, Calif.

The Friden Division of the Singer Co. has a new education center offering DP systems courses at 14826 Wicks Blvd., San Leandro, Calif.

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RCA

State Relies on Independent Peripherals In Consolidation of Seven Data Centers

By a CW Staff Writer

COLUMBUS, Ohio — The use of independent peripheral equipment has been so successful for state government here that a massive upturning procurement will be bid separately for mainframes, peripherals and conversions.

While "difficult to measure throughput," it has been proven that managers are "very happy" with their independent equipment, according to Tim Terry, Ohio DP coordinator.

Imminent "requests for proposals" for an August procurement will cover the consolidation of seven data centers into a new, 42-story government office building, Terry told CW.

The state now procures through competitive bids on both hardware and software, he noted, expressing optimism for the summer consolidation.

Ohio now has both Telex and Remotex peripherals, having replaced all the similar IBM gear, Terry related. Now that Ampex has dissolved an exclusive mar-

keting agreement with a leasing company, Terry indicated that vendor would also be eligible for the upcoming purchase.

"In fact, we expect all of them" to be interested, he added.

"Centralization is beneficial and economical for this state," he reported, adding Gov. John Gilligan had fostered "enthusiasm and support" for the DP policies of separate procurements and centralized management.

Without support from the top, Terry claimed the state would not have been able to show the \$130,000 in savings over the

past six months, a figure he expects will grow to at least \$500,000 before the first year of an austerity program has been completed.

The figures will be difficult to pinpoint, since the elimination of extra-shift rental costs by the independent manufacturers makes otherwise "billable overtime" impossible to estimate, he explained.

An "open and honest policy" of permitting all vendors to inspect purchase agreements keeps competitors and political opponents from suspecting any "funny money" agreements, Terry concluded.

Orders and Installations

Meister Brau, Inc. of Chicago has installed a Burroughs B2500 computer system valued at more than \$346,000.

Five Canadian universities in the Province of Ontario have installed an Informatics Mark IV file management system. They are: Lakehead University, Queen's University, University of Guelph, University of Waterloo and York University.

An IBM System/3 Model 10 computer has been installed at the Pee Dee State Bank, Timmonsville, S.C., and is being used for demand deposit accounting, aged trial balance and customer service applications.

Reynolds & Reynolds Co., Dayton, Ohio, has ordered five Burroughs B4504 computer systems with a combined value of \$7,300,000.



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Contracts

PRC Information Sciences Co. and Alan M. Voorhees and Associates, Inc. of McLean, Va., have been awarded a \$61,000 contract by the Oregon State Highway Division to develop an automated system for traffic accident analysis.

Wyle Laboratories, El Segundo, Calif., will furnish instrumentation calibration and repair services to NASA's Langley Research Center, Hampton, Va., under a three-year \$7.3 million cost-plus-award-fee contract.

Bucode, Inc., Hauppauge, N.Y., has received a contract having an expected value of about \$2.5 million from the Ampex Corp. to furnish Ampex with automatic loading tape transport systems.

The National Center for Atmospheric Research of Boulder, Colo., has awarded a subcontract to Per Data, Inc., Hicksville, L.I., N.Y., for a computer system to be used in the investigation of halitosis.

Pulse Communications, Inc., Falls Church, Va., has received a \$140,000 contract from the Washington State Patrol for teleprinter controllers and modems for use on a new message-switching network.

McDonnell Douglas Automation Co., St. Louis, Mo., has signed an agreement with the Mississippi Hospital Association to provide DP services.

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Memorex Lost \$13.7 Million in 4th Quarter

SANTA CLARA, Calif. — Handed by accounting rules, accountants and the Securities and Exchange Commission, Memorex Corp. has still managed to come out with a preliminary report of its 1970 earnings showing a fourth quarter loss of \$13.7 million and an earnings for the year of \$3.2 million, or 83 cents a share, on shares of \$79 million.

Last week Memorex filed a \$100.05 billion counter claim against IBM, charging the industry giant with restraint of trade. (See story on Page 29.)

The \$79 million figure does not include \$42.3 million billed to independent Leasing Corp., an entity Memorex created this year to lease Memorex-produced memory devices to end-users. The controversy has been over how Memorex will account for sales to ILC, of which it owns 20% and has options to gain the remaining 80%.

Memorex wished to account for sales to ILC as straightforward sales on its books, but accountants claimed that the sales could be entered only as ILC received lease revenue for

the devices.

Memorex has temporarily resolved the question by presenting its results in three columns, one for Memorex proper, one for ILC and one for the combination of the two.

The per share figure, for example, reflects only the earnings Memorex would have if it were

Financial

making all its equipment leases to end users, as if ILC did not exist, even though Memorex is liable to income tax on profits from sale of equipment to ILC.

Because of the change of Memorex's business from OEM supplier to end-user marketing, President Laurence L. Spitters has predicted that the company will lose money in the first quarter of 1971 as it did in the last quarter of 1970. "The greater the volume of equipment under lease, the greater the immediate adverse impact on current earnings," Spitters said.

Spitters said he expected the

company to break even at the middle of 1971, and make a profit in the second half.

In its nine-month report Memorex had included sales to ILC on a non-deferred basis, even though ILC at that time had not been fully capitalized. Now, with the capitalization of the company completed last Dec. 29, Memorex has decided not to include any ILC sales in that manner. About 11% of Memorex-manufactured peripherals are directly leased by Memorex, though.

Of the \$79 million revenue for

1970, only \$1.5 million was realized income on transactions with ILC, even though sales to the company were \$42 million. Memorex's 1969 sales were \$74 million.

The net income of Memorex for the year was \$3.2 million, down from \$6.9 million the year before, primarily because of increases in operating costs and employee profit sharing.

Memorex contends that the 1969 figures are not comparable with 1970's because of the change in the nature of the company's business.

Leasco and Abacus Fund Drop Plans for Merger

NEW YORK — The proposed merger between Leasco Corp. and Abacus Fund, Inc. [CW, March 17] has been dropped, due primarily to Abacus's inability to get rid of a 25% interest in a bank.

Two Abacus directors had opposed the merger, but according to Leasco Chairman Saul P. Steinberg, the discussions were terminated because Abacus had not finished its sale of the Security National Bank of Huntington, N.Y.

Owning the 25% interest might qualify Abacus as a bank holding company and put it under the supervision of the Federal Reserve Board. If Leasco had bought Abacus, it, too, would come under the Fed supervision.

a situation Leasco did not want.

Talks are now going on about the sale of the bank to a Chicago financial concern, and Abacus held off disposing of its shares until the talks are concluded. Apparently Leasco decided not to wait until negotiations were completed, and dropped the merger offer.

It has been reported that once the Security National situation is cleared up, Abacus-Leasco merger talks may resume.

Trading in share of the two companies was halted on the New York Stock Exchange while the merger negotiations were going on. When it was reopened Leasco was unchanged and the fund was down an eighth.

Levin Resigns L-T Posts

NEW YORK — Howard S. Levin, cofounder of Levin-Townsend Computer Corp., has resigned as a director of the company and as chairman of its finance committee.

Levin was ousted as president in January 1970, when L-T encountered severe cash flow problems.

The resignation was presented by the company as amicable. During the summer Levin had threatened a proxy fight to regain control of the firm, but finally reached a compromise with James E. Townsend, the other founder.

Levin said he considered his job at L-T done, and that the computer lessor did not need his services any longer.

"I plan to turn my attention to other business activities which

have been making increasing demands on my time," Levin said.

He is currently chairman of the executive committee of Computer Resources, Inc., a Cleveland disk drive lessor.

L-T's most recent financial report was for the nine months ending Dec. 31, when it had a net loss of \$803,662 after extraordinary net charges of \$2.1 million. In the fiscal year ending March 31, 1970, L-T reported a net loss of \$28.8 million.

Harris-Intertype To Get Control Of Datacraft

DALLAS — Recognition Equipment will relinquish its controlling interest in Datacraft Corp. of Fort Lauderdale, Fla., a minicomputer and memory maker, to Cleveland's Harris-Intertype Corp.

Harris said that the miniskimmer would provide computer capability for its automated typesetting equipment. Harris will be buying almost one-half of Datacraft's outstanding stock.

Under the agreement, Harris will loan Datacraft \$1.6 million in exchange for notes convertible into 800,000 shares of Datacraft common. REI will exchange its 640,000 Datacraft shares for 142,000 REI shares issued to the Florida company when REI bought into Datacraft.

Nickels and Dimes

Times are hard all over department, Armonk division: even T.J. Watson Jr. is feeling the pinch of the recession. His 1970 incentive pay — which goes on top of a \$180,000 salary — was only \$263,735, off from \$282,018 in 1969. If it's any consolation.

\$\$\$

Terminal-making Sycoz has finished up its \$5.2 million financing through the sale of \$2 million in preferred stock and convertible notes to an investor group, and the swap of \$3.2 million of the same instruments for the short-term notes held by EM & Delta M.V.

\$\$\$

Astrodata, Inc., a software house currently in Chapter 11, has lost its president. Neither Astrodata nor the former head, R.B. Baker, would comment on the situation. It has been reported, though, that the cause of the resignation was a disagreement with the firm's bankers over product development expenses. Three other executives left with Baker.

\$\$\$

Times are hard all over department, it's cold up here in Minnesota division: Honeywell Chairman James Binger took a pay cut to \$180,000 in 1970 from \$234,000 in 1969. President Stephen Keating dropped from \$193,000 to \$147,500.

\$\$\$

Securities and Exchange Commission is trying to move Viatron from its cozy Chapter 11 status to liquidation under Chapter 10. Viatron has been trying to induce creditors to accept one share of its common stock for each \$2.50 of debt. The SEC charges that Viatron made misleading statements of its indebtedness, and later corrected them with new schedules showing much greater debt.

\$\$\$

Foxboro's 400,000 share common stock offering was oversubscribed when it reached the market at a price of \$38.125. Some 300,000 shares were offered by the company and the remainder by private stockholders. Total value was \$15.25 million.

\$\$\$

Systems International, the UK service bureau sought by the collapse of its major shareholder, Rolls-Royce [Nickels and Dimes, March 10], has followed its parent into the hands of a financier. The company's financials, stretched thin by delays in SI's becoming operational, were aggravated by an \$800,000 loan it had made to Rolls.

According to our man in London, this is some hope that new financing can be found and that the bureau will remain in operation. Named as interested were the Chartered financial group and Miles Roman, Ltd.

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[illegible]

Earnings Reports

DATA GENERAL CORP.
Three Months Ended March 13

	1971	1970
Shr Ernd	\$13	\$8.06
Revenue	2,784,000	1,413,000
Tax Cred	111,000
Earnings	308,000	b219,000
6 Mo Shr	.24	a.08
Revenue	0,012,000	2,528,000
Tax Cred	155,000
Earnings	028,000	b307,000

a-Based on income before tax credit.
b-Equal to 11 cents a share in the three-month period and 16 cents a share in the six-month period.

MEMOREX CORP.
Year Ended Dec. 31
1970 1969

Shr Ernd	8.83
Revenue	78,996,817
Earnings	3,188,585
a-Excludes \$42,345,105 billed to independent Leasing Corp., an affiliate.		
b-Comparable figures not reported because of the changing nature of the		

BRESNAHAN COMPUTER CORP.
Three Months Ended Dec. 31

	1970	1969
Shr Ernd	\$02	\$05
Revenue	1,497,800	1,395,000
Earnings	31,500	170,000

URS SYSTEMS CORP.
Three Months Ended Jan. 31

	1971	1970
Revenue	1,497,800	1,395,000
Earnings	31,500	170,000

Shr Eand	b8.03	8.11
cRevenue	3,921,372	5,235,398
Spec Cred	24,636	
Earnings	886,279	358,720

a-Restated by company. b-Based on income before special credit. c-From continuing operations; exclude: \$444,034 in 1971 and \$541,981 in 1970 from operations now sold or being discontinued. e-Equal to 4 cents a share.

5hr Ernd	\$02	\$06
Revenue	1,690,000	1,960,000
Earnings	92,000	302,000

FRANC BUSINESS FORMS

	1971	1970
Shr Ernd	\$60	\$8.95
Revenue	44,300,000	41,867,059
Spec Cred	-----	c60,541
Earnings	1,500,000	a2,329,687

b-Preliminary, c-Based on income before special credit, d-From life insurance proceeds, e-Equal to 97 cents a share.

COMPUTER EQUIPMENT CORP.		
Year Ended Dec. 30		
	1970	1969
aShr Ernd	\$.04	\$.38
bRevenue	20,093,000	18,051,000
cNet Cont		
Op	\$88,000	\$59,000
Op Disn		

Cost Disc		
Op	449,000	18,000
Spec Chg	573,000
Earnings	(154,000)	243,000

a-Based on income before special charge. b-From continuing operations. c-Equal to 23 cents a share in 1970 and 36 cents a share in 1969. d-Reserve for losses on assets liquidations and closing costs.

TRACOR COMPUTING CORP.		
Year Ended Dec. 31		
	1970	1969
Revenue	\$7,600,000	\$7,641,000

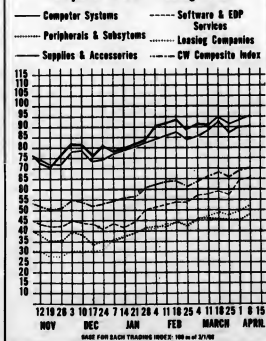
Loss Cont	1,549,000	2,311,000
Loss Disc	477,000	1,801,000
Spec Chg	635,000	
Loss	2,661,000	4,112,000

a-Restated to reflect acquisitions on

from sale of property, estimated loss from disposal of computer centers, rent on non-cancellable leases or non-operating suggestions required.

SYSTEMS CAPITAL CORP.
Year Ended Dec. 31

Computer Stocks Trading Index





Announcing Autoflow's Fifth First.

First First: 1966

Second First: 1967

Third First: 1968

Fourth First: 1969

And now, the Fifth First: 1970



APPLIED DATA RESEARCH
THE SOFTWARE BUILDERS

